

MANIFOLDS

REV B

9-2**Function Manifold Components - View 2**

The function manifold assembly is located on the tank side tray, behind the ground control box.

Index No.	Description	Schematic Item	Function	Torque
1	Check valve, 30 psi / 2 bar	HH	Platform rotate circuit (prevents hydraulic hoses from draining back to tank)	25-30 ft-lbs / 34-41 Nm
2	Check valve, 30 psi / 2 bar	II	Blocks flow from charge pump to auxiliary pump	25-30 ft-lbs / 34-41 Nm
3	Flow regulator valve, 0.3 gpm / 1.14 L/min	JJ	Dump circuit source from charge pump	25-30 ft-lbs / 34-41 Nm
4	Solenoid valve, 2 position 2 way	KK	Allows boom functions to operate with the boom in the stowed position	10-12 ft-lbs / 14-16 Nm
5	Check valve, 30 psi / 2 bar	LL	Blocks flow from auxiliary pump to charge pump	25-30 ft-lbs / 34-41 Nm
6	Solenoid valve, 2 position 3 way	MM	Provides pilot signal to redirect steer flow to axle extension system ..	10-12 ft-lbs / 14-16 Nm
7	Directional valve, 2 position 2 way, pilot operated	NN	Dump valve that allows boom functions to operate when axles are fully extended	130-140 ft-lbs / 176-190 Nm
8	Relief valve, 2100 psi / 145 bar	OO	Boom down	25-30 ft-lbs / 34-41 Nm

Plug Torque Specifications

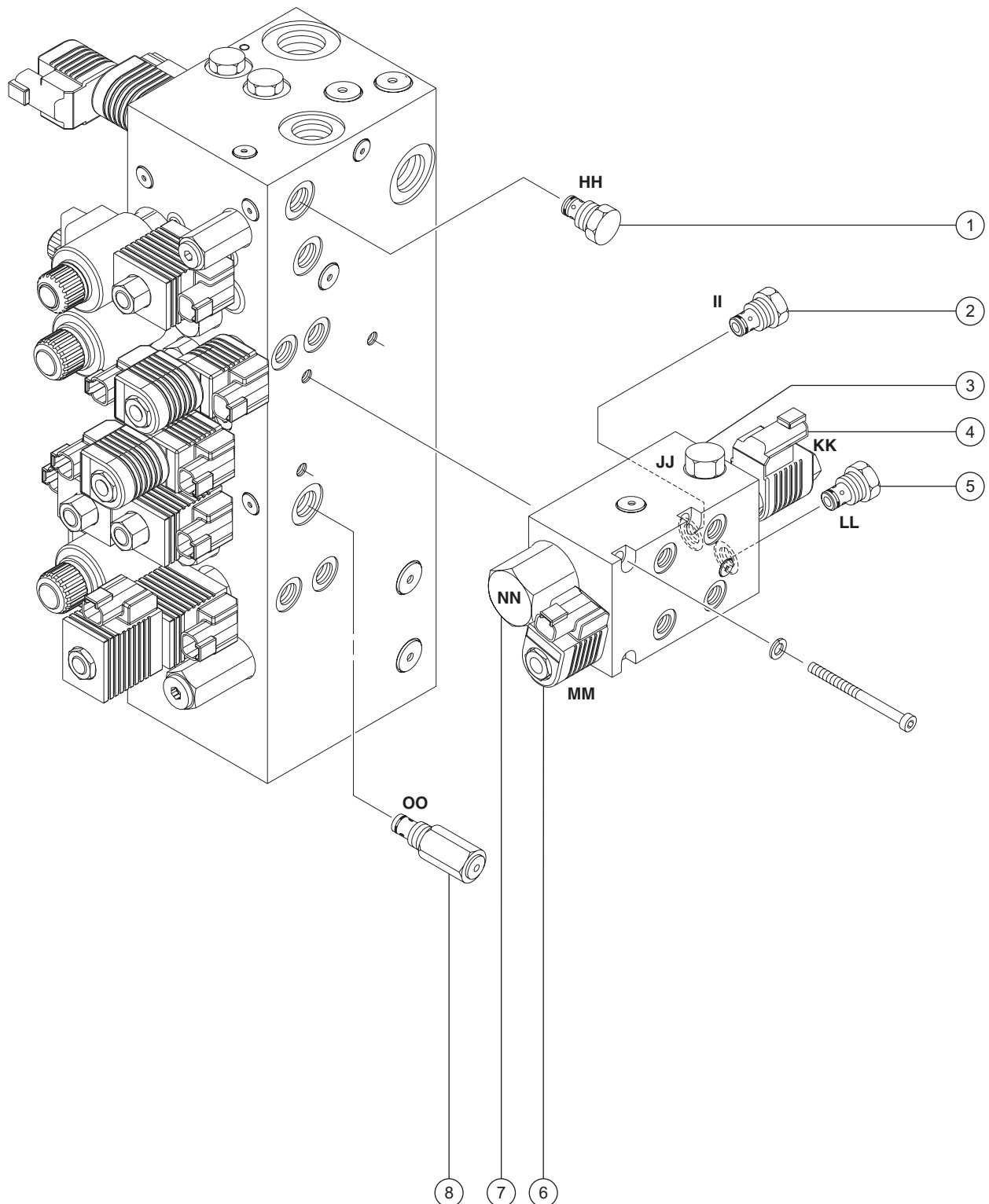
Description	Hex size	Torque
SAE No. 4	$\frac{3}{16}$	13 ft-lbs / 18 Nm
SAE No. 6	$\frac{1}{4}$	18 ft-lbs / 24 Nm
SAE No. 8	$\frac{5}{16}$	50 ft-lbs / 68 Nm
SAE No. 10	$\frac{9}{16}$	55 ft-lbs / 75 Nm

Valve Coil Resistance Specification

Solenoid valve, 2 position 3 way, 10V DC (schematic items KK and MM)	6Ω
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9-3 Valve Adjustments - Function Manifold

How to Adjust the System Relief Valve

NOTICE Perform this procedure with the boom in the stowed position.

- 1 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the diagnostic nipple (PTEST port) on the function manifold.
- 2 Start the engine from the ground controls.
- 3 Hold the function enable/rpm select toggle switch to the high idle position and activate and hold the boom retract toggle switch with the boom fully retracted. Observe the pressure reading on the pressure gauge.

System relief valve specification

Pressure	2800 psi 193 bar
----------	---------------------

- 4 Turn the engine off. Use a wrench to hold the relief valve and remove the cap (item T) on the function manifold.
- 5 Adjust the internal hex socket. Turn it clockwise to increase pressure or counterclockwise to decrease pressure. Install the relief valve cap.

⚠ WARNING Tip-over hazard. Do not adjust the relief valves higher than specified.

- 6 Repeat steps 2 through 5 to confirm relief valve pressure.

How to Adjust the Boom Down Relief Valve

NOTICE Perform this procedure with the boom in the stowed position.

- 1 Connect a 0 to 5000 psi / 0 to 350 bar pressure gauge to the diagnostic nipple (PTEST port) on the function manifold.
- 2 Start the engine from the ground controls.
- 3 Hold the function enable/rpm select toggle switch to the high idle position and activate and hold the boom down toggle switch with the boom fully lowered. Observe the pressure reading on the pressure gauge.

Boom down relief valve specification

Pressure	2100 psi 145 bar
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- 4 Turn the engine off. Use a wrench to hold the relief valve and remove the cap (item OO) on the function manifold.
- 5 Adjust the internal hex socket. Turn it clockwise to increase pressure or counterclockwise to decrease pressure. Install the relief valve cap.

⚠ WARNING Tip-over hazard. Do not adjust the relief valves higher than specified.

- 6 Repeat steps 2 through 5 and confirm relief valve pressure.

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How to Adjust the Boom Extend Relief Valve

NOTICE Perform this procedure with the boom in the stowed position.

- 1 Connect a 0 to 3000 psi / 0 to 200 bar pressure gauge to the diagnostic nipple (P_{TEST} port) on the function manifold.
- 2 Start the engine from the ground controls.
- 3 Hold the function enable/rpm select toggle switch to the high idle position and activate and hold the boom extend toggle switch with the boom fully extended. Observe the pressure reading on the pressure gauge.

Boom extend relief valve specification

Pressure	2500 psi 172 bar
----------	---------------------

- 4 Turn the engine off. Use a wrench to hold the relief valve and remove the cap (item F) on the function manifold.
- 5 Adjust the internal hex socket. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure. Then install the relief valve cap.

⚠WARNING Tip-over hazard. Do not adjust the relief valves higher than specified.

- 6 Repeat steps 2 through 5 to confirm relief valve pressure.

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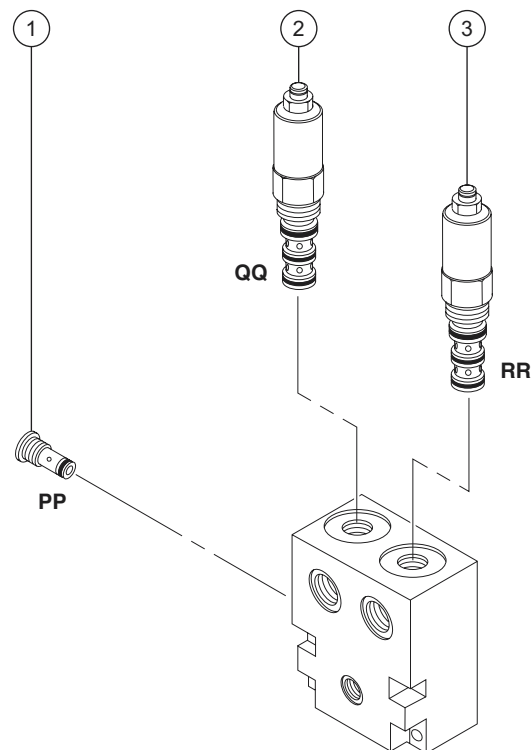
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Turntable Rotation Manifold Components

The turntable rotation manifold is mounted to the turntable rotation motor at the ground control side of the machine.

Index No.	Description	Schematic Item	Function	Torque
1	Shuttle valve, 2 position 3 way	PP	Turntable rotation brake release	10-13 ft-lbs / 14-18 Nm
2	Counterbalance valve	QQ	Turntable rotate left	25-30 ft-lbs / 34-41 Nm
3	Counterbalance valve	RR	Turntable rotate right	25-30 ft-lbs / 34-41 Nm



Plug Torque Specifications

Description	Hex size	Torque
SAE No. 2	1/8	50 in-lbs / 6 Nm
SAE No. 4	3/16	13 ft-lbs / 18 Nm
SAE No. 6	1/4	18 ft-lbs / 24 Nm

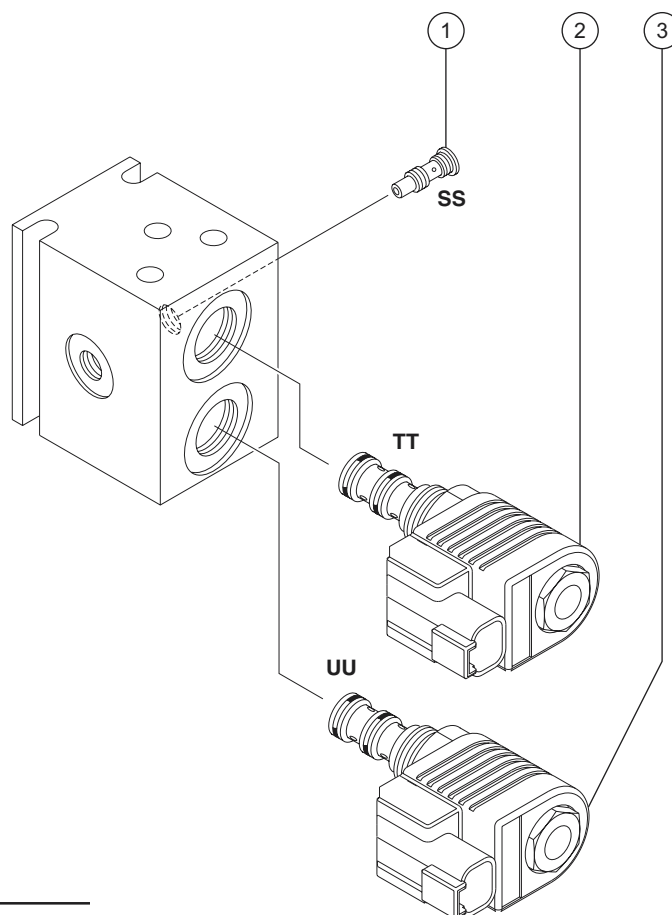
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9-5 Brake/Two-Speed Manifold Components

The brake/two-speed manifold is mounted on the engine tray.

Index No.	Description	Schematic Item	Function	Torque
1	Check valve	SS	Brake circuit	8-10 ft-lbs / 10-15 Nm
2	Solenoid valve, 2 position 3 way	TT	Brake release	25-30 ft-lbs / 34-41 Nm
3	Solenoid valve, 2 position 3 way	UU	2-Speed wheel motors, (energized in high range to destroke the drive motor swash plates)	25-30 ft-lbs / 34-41 Nm



Valve Coil Resistance Specification

Solenoid valve, 2 position 3 way, 10V DC (schematic items TT and UU)	6 Ω
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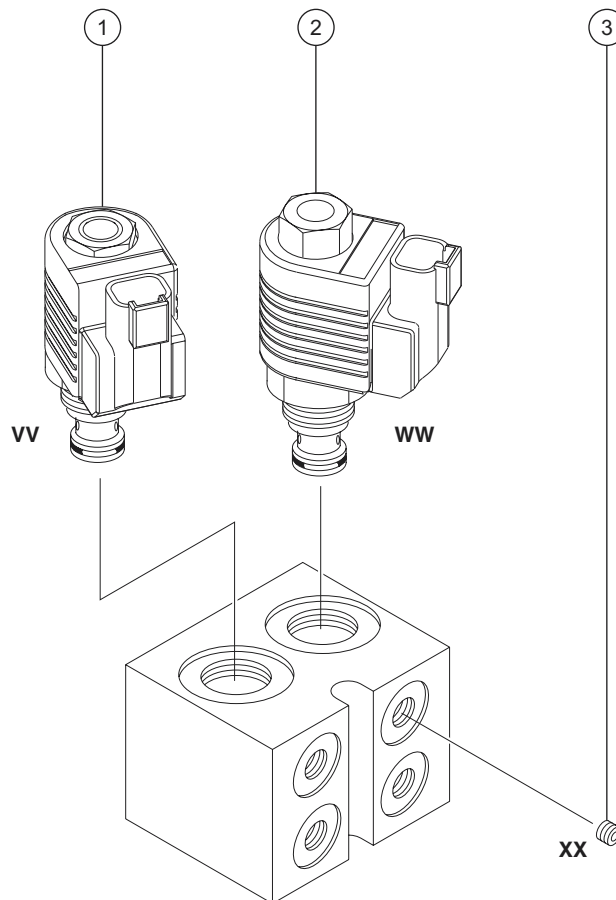
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9-6**Jib Boom Select Manifold Components, S-85**

The jib boom/platform rotate manifold is mounted on the platform end of the boom.

Index No.	Description	Schematic Item	Function	Torque
1	Solenoid valve, 2 position 3 way	VV	Platform rotate select	8-10 ft-lbs / 11-14 Nm
2	Solenoid valve, 2 position 3 way	WW	Jib boom select	8-10 ft-lbs / 11-14 Nm
3	Orifice plug, 0.035 inch (0.89 mm)	XX	Jib boom circuit	

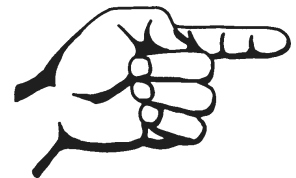


Valve Coil Resistance Specification

2 position 3 way solenoid valve, 10V DC (schematic items VV and WW)	6 Ω
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9-7**Axle Select Manifold Components**

The axle select manifold is mounted next to the drive manifold at the non-steer end of the machine.

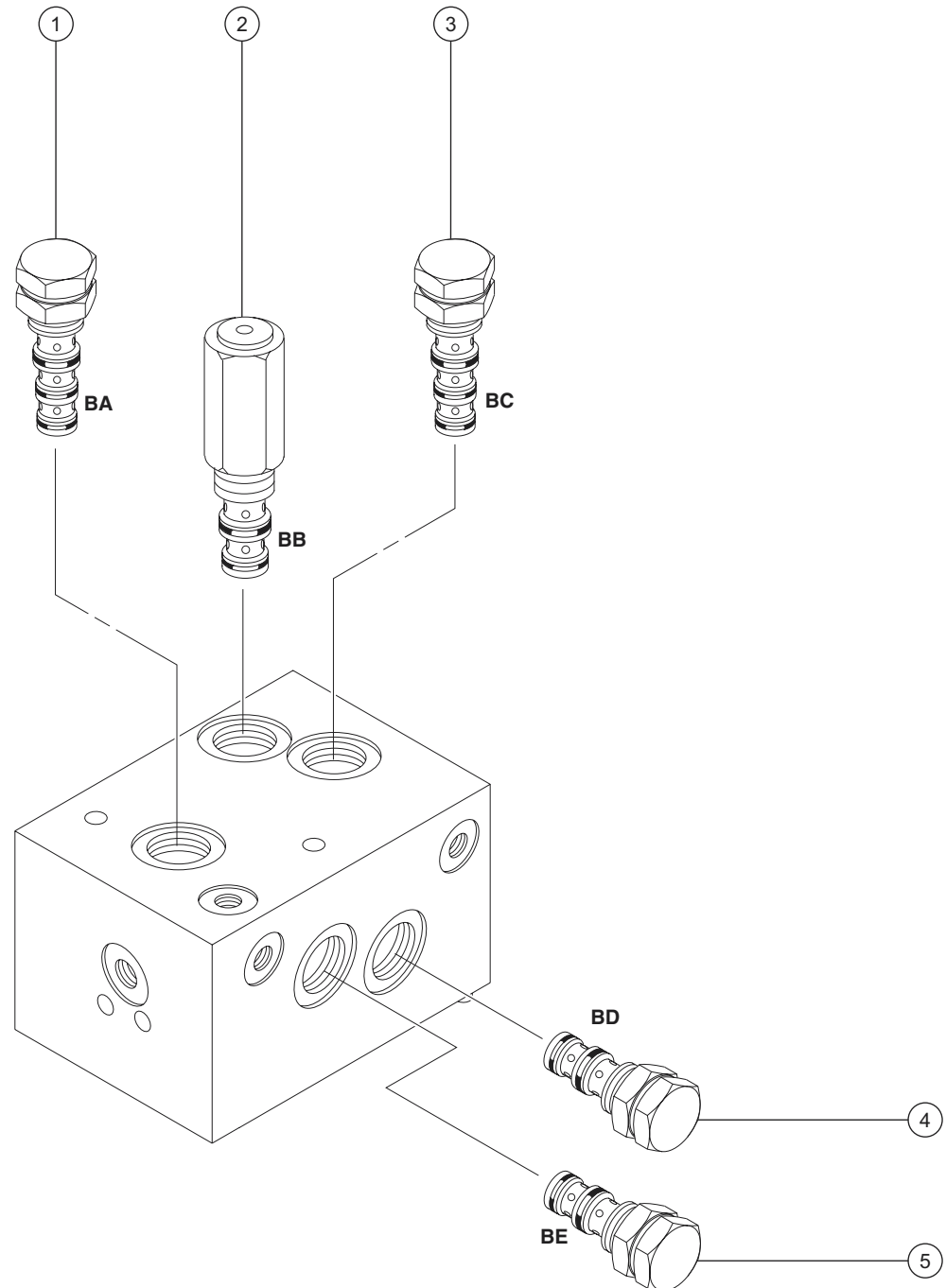
Index No.	Description	Schematic Item	Function	Torque
1	Directional valve, pilot operated 2 position 3 way	BA	Directs flow from steer cylinders to axle extend circuit	10-12 ft-lbs / 14-16 Nm
2	Pressure reducing valve, 1000 psi / 69 bar	BB	Limits pressure to tie rod cylinder during axle extension	35-40 ft-lbs / 47-54 Nm
3	Directional valve, pilot operated 2 position 3 way	BC	Directs flow from steer cylinders to axle retract circuit	10-12 ft-lbs / 14-16 Nm
4	Directional valve, pilot operated 2 position 2 way	BD	Locks out steer cylinders during axle extend/retract	10-12 ft-lbs / 14-16 Nm
5	Directional valve, pilot operated 2 position 2 way	BE	Locks out steer cylinders during axle extend/retract	10-12 ft-lbs / 14-16 Nm

Plug Torque Specifications

Description	Hex size	Torque
SAE No. 2	1/8	50 in-lbs / 6 Nm
SAE No. 4	3/16	13 ft-lbs / 18 Nm
SAE No. 6	1/4	18 ft-lbs / 24 Nm

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2WD Drive Manifold Components

The drive manifold is mounted inside the drive chassis at the non-steer end of the machine.

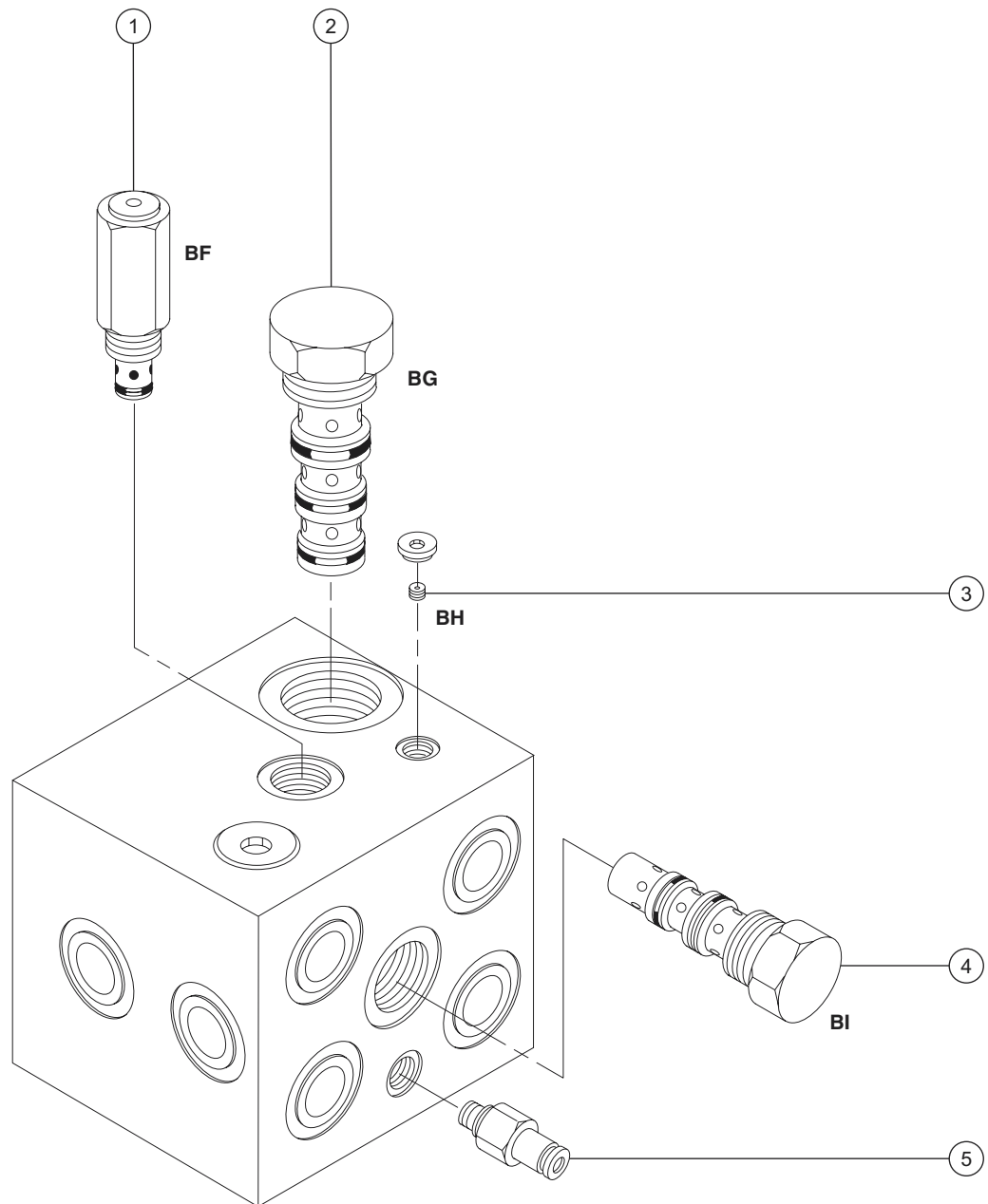
Index No.	Description	Schematic Item	Function	Torque
1	Relief valve, 280 psi / 19.3 bar	BF	Charge pressure circuit	35-40 ft-lbs / 47-54 Nm
2	Flow divider/combiner valve	BG	Controls flow to drive motors in forward and reverse	130-140 ft-lbs / 176-190 Nm
3	Orifice - Plug, 0.070 inch / 1.77 mm ..	BH	Equalizes flow across flow divider/combiner valve (item BG)	
4	Shuttle valve, 3 position 3 way	BI	Charge pressure circuit that gets hot oil out of low pressure side of drive pump	15-18 ft-lbs / 20-24 Nm
5	Diagnostic nipple		Testing	

Plug Torque Specifications

Description	Hex size	Torque
SAE No. 4	3/16	13 ft-lbs / 18 Nm
SAE No. 12	5/8	75 ft-lbs / 102 Nm

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9-9

4WD Drive Manifold Components

The drive manifold is mounted inside the drive chassis at the non-steer end of the machine.

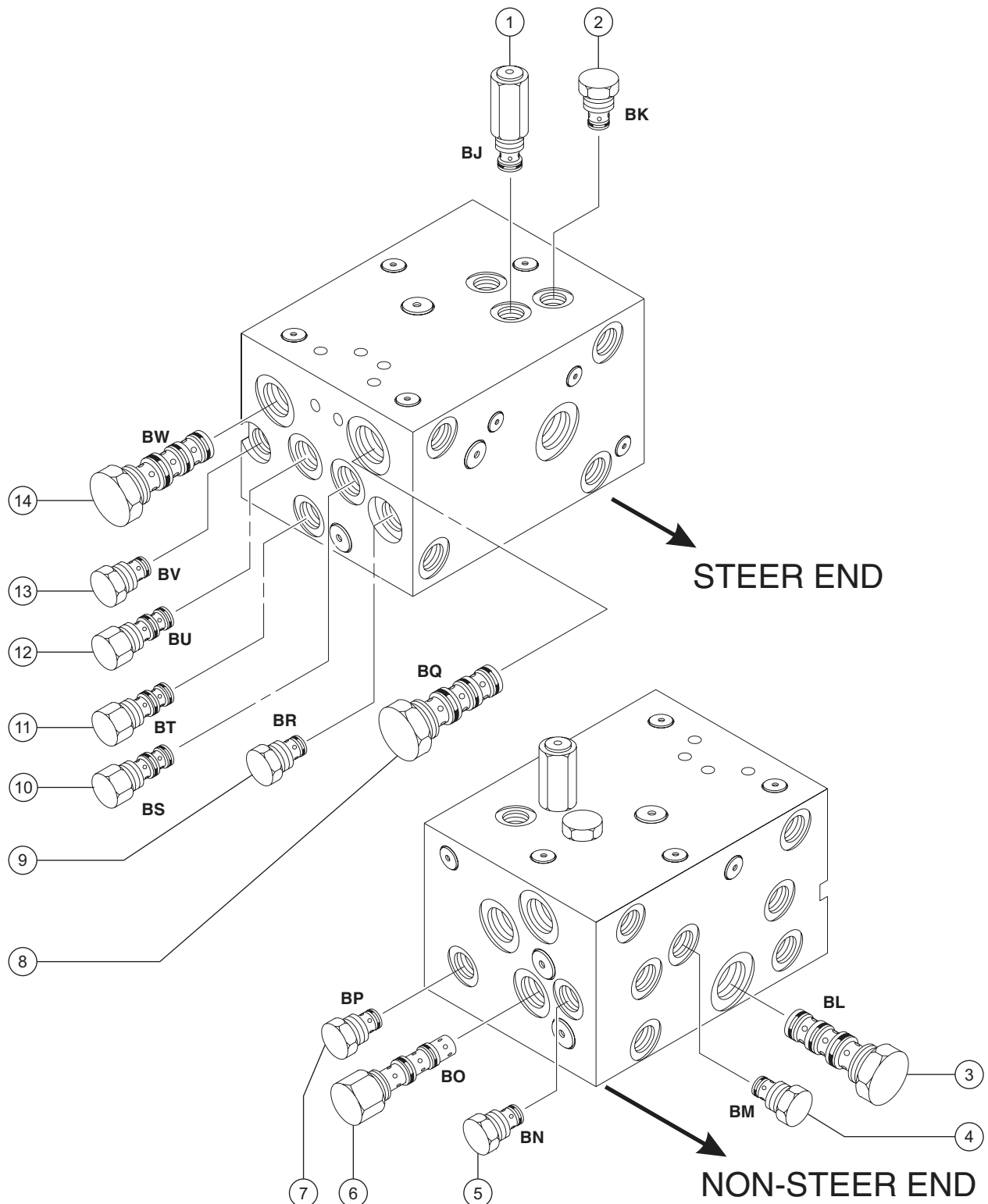
Index No.	Description	Schematic Item	Function	Torque
1	Relief valve, 280 psi / 19.3 bar	BJ	Charge pressure circuit	25-30 ft-lbs / 34-41 Nm
2	Check valve, 5 psi / 0.34 bar	BK	Drive motor anti-cavitation	25-30 ft-lbs / 34-41 Nm
3	Flow divider/combiner valve	BL	Controls flow to flow divider/combiner valves BQ and BW	130-140 ft-lbs / 176-190 Nm
4	Check valve, 5 psi / 0.34 bar	BM	Drive motor anti-cavitation	25-30 ft-lbs / 34-41 Nm
5	Check valve, 5 psi / 0.34 bar	BN	Drive motor anti-cavitation	35-40 ft-lbs / 47-54 Nm
6	Shuttle valve	BO	Charge pressure circuit that gets hot oil out of low pressure side of drive pump	15-18 ft-lbs / 20-24 Nm
7	Check valve, 5 psi / 0.34 bar	BP	Drive motor anti-cavitation	25-30 ft-lbs / 34-41 Nm
8	Flow divider/combiner valve	BQ	Controls flow to steer end drive motors in forward and reverse	130-140 ft-lbs / 176-190 Nm
9	Check valve, 5 psi / 0.34 bar	BR	Drive motor anti-cavitation	25-30 ft-lbs / 34-41 Nm
10	Flow regulator valve, 2 gpm / 7.6 L/min	BS	Equalizes pressure on both sides of flow divider/combiner valve BQ	35-40 ft-lbs / 47-54 Nm
11	Flow regulator valve, 2 gpm / 7.6 L/min	BT	Equalizes pressure on both sides of flow divider/combiner valve BL	35-40 ft-lbs / 47-54 Nm
12	Flow regulator valve, 2 gpm / 7.6 L/min	BU	Equalizes pressure on both sides of flow divider/combiner valve BW ...	35-40 ft-lbs / 47-54 Nm
13	Check valve, 5 psi / 0.34 bar	BV	Drive motor anti-cavitation	25-30 ft-lbs / 34-41 Nm
14	Flow divider/combiner valve	BW	Controls flow to non-steer end drive motors in forward and reverse	130-140 ft-lbs / 176-190 Nm

Plug Torque Specifications

Description	Hex size	Torque
SAE No. 4	3/16	13 ft-lbs / 18 Nm
SAE No. 6	1/4	18 ft-lbs / 24 Nm
SAE No. 8	5/16	50 ft-lbs / 68 Nm

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9-10**Valve Adjustments -
Drive Manifold****How to Adjust the Hot Oil Shuttle
Relief Valve****NOTICE**

The pressure differential between the charge pump relief valve (located in the drive pump) and the hot oil shuttle relief valve (located in the drive manifold) is necessary to return hot oil from the closed loop drive circuit to the hydraulic tank for cooling. This pressure differential must be maintained at 40 psi / 14.5 bar.

NOTICE

The following procedure will require two people.

- 1 Open the engine side turntable cover and connect a 0 to 600 psi / 0 to 41 bar pressure gauge to the diagnostic nipple on the drive pump.
- 2 Start the engine from the platform controls and allow the engine to run at low idle. Note the pressure reading on the pressure gauge.
- 3 Turn the engine off and connect a 0 to 600 psi / 0 to 41 bar pressure gauge to the diagnostic nipple located on the drive manifold.

- 4 Start the engine from the platform controls and drive the machine slowly in the forward direction. Note the pressure reading on the pressure gauge.
- 5 Turn the engine off, and remove the hot oil shuttle relief valve cap (item BJ). Adjust the internal hex socket clockwise to increase the pressure or counterclockwise to decrease the pressure. Install the valve cap.
- 6 Repeat steps 4 and 5 until a pressure differential (between the charge pump reading and the hot oil shuttle relief valve) of 40 psi / 14.5 bar is obtained.

Hot oil shuttle relief valve specification

Pressure	280 psi 19.3 bar
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9-11 Valve Coils

How to Test a Coil

A properly functioning coil provides an electromotive force which operates the solenoid valve. Critical to normal operation is continuity within the coil that provides this force field.

⚠WARNING Electrocution hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 1 Tag and disconnect the wiring from the coil to be tested.
 - 2 Test the coil resistance.
- ⦿ Result: The resistance should be within specification, plus or minus 30%.
 - ⦿ Result: If the resistance is not within specification, plus or minus 30%, replace the coil.

Valve Coil Resistance Specification

Description	Specification
Solenoid valve, 3 position 4 way, 10V DC (schematic items A, E, N and S)	5 to 7Ω
Solenoid valve, 2 position 3 way, 10V DC (schematic items D, R, X, KK, MM, TT, UU, VV and WW)	5 to 7Ω
Solenoid valve, 2 position 3 way, 10V DC (schematic item G)	2.5 to 4.5Ω
Proportional solenoid valve, 12V DC (schematic items K, W and CC)	4 to 6Ω

How to Test a Coil Diode

Genie incorporates spike suppressing diodes in all of its directional valve coils except proportional valves and those coils with a metal case. Properly functioning coil diodes protect the electrical circuit by suppressing voltage spikes. Voltage spikes naturally occur within a function circuit following the interruption of electrical current to a coil. Faulty diodes can fail to protect the electrical system, resulting in a tripped circuit breaker or component damage.

⚠WARNING Electrocution hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 1 Test the coil for resistance. See, *How to Test a Coil*.

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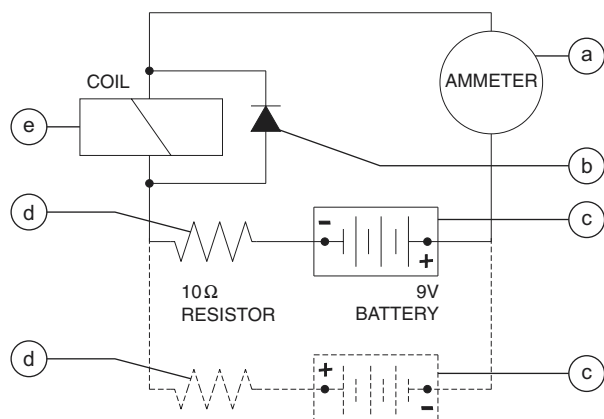
- 2 Connect a 10Ω resistor to the negative terminal of a known good 9V DC battery. Connect the other end of the resistor to a terminal on the coil.

Resistor, 10Ω

Genie part number

27287

NOTICE The battery should read 9V DC or more when measured across the terminals.



- a multimeter
- b 9V DC battery
- c 10Ω resistor
- d coil

Note: Dotted lines in illustration indicate a reversed connection as specified in step 6

- 3 Set a multimeter to read DC current.

NOTICE The multimeter, when set to read DC current, should be capable of reading up to 800 mA.

- 4 Connect the negative lead to the other terminal on the coil.

NOTICE If testing a single-terminal coil, connect the negative lead to the internal metallic ring at either end of the coil.

- 5 Momentarily connect the positive lead from the multimeter to the positive terminal on the 9V DC battery. Note and record the current reading.
 - 6 At the battery or coil terminals, reverse the connections. Note and record the current reading.
- ⦿ Result: Both current readings are greater than 0 mA and are different by a minimum of 20%. The coil is good.
 - ⦿ Result: If one or both of the current readings are 0 mA, or if the two current readings do not differ by a minimum of 20%, the coil and/or its internal diode are faulty and the coil should be replaced.

REV B

Fuel and Hydraulic Tanks

10-1 Fuel Tank

How to Remove the Fuel Tank

⚠ DANGER Explosion and fire hazard. Engine fuels are combustible. Remove the fuel tank in an open, well-ventilated area away from heaters, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach.

⚠ DANGER Explosion and fire hazard. When transferring fuel, connect a grounding wire between the machine and pump or container.

- 1 Turn the manual fuel shutoff valve to the closed position (if equipped).
- 2 Remove the fuel filler cap from the tank.
- 3 Using an approved hand-operated pump, drain the fuel tank into a suitable container. See capacity specifications.

⚠ DANGER Explosion and fire hazard. When transferring fuel, connect a grounding wire between the machine and pump or container.

NOTICE Be sure to only use a hand operated pump suitable for use with gasoline and diesel fuel.

- 4 Tag, disconnect, drain and plug the supply and return fuel hoses. Cap the fittings on the fuel tank.

- 5 Remove the fuel tank retaining fasteners.

- 6 Remove the fuel tank from the machine.

CAUTION Component damage hazard. The fuel tank is plastic and may become damaged if allowed to fall.

CAUTION Component damage hazard. When installing the plastic fuel tank, do not overtighten the retaining fasteners.

NOTICE Clean the fuel tank and inspect for damage before installing it onto the machine.

FUEL AND HYDRAULIC TANKS

REV B

10-2 Hydraulic Tank

The primary functions of the hydraulic tank are to cool, clean and deaerate the hydraulic fluid during operation. The tank utilizes internal suction strainers for the pump supply hoses and has an external return filter equipped with a filter condition indicator.

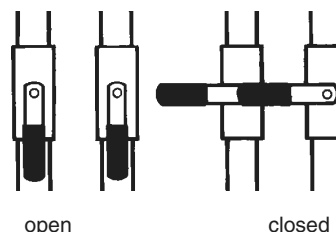
How to Remove the Hydraulic Tank

CAUTION Component damage hazard. The work area and surfaces where this procedure will be performed must be clean and free of debris that could get into the hydraulic system.

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Lower and retract the boom to the stowed position.
- 2 Remove the fuel tank. See 10-1, *How to Remove the Fuel Tank*.

- 3 Close the two hydraulic tank valves located at the hydraulic tank (if equipped).



CAUTION Component damage hazard. The engine must not be started with the hydraulic tank shutoff valves in the CLOSED position or component damage will occur. If the tank valves are closed, remove the key from the key switch and tag the machine to inform personnel of the condition.

- 4 Remove the drain plug from the hydraulic tank and completely drain the tank into a suitable container. See capacity specifications.
- 5 Tag, disconnect and plug the two suction hoses that are attached to the hydraulic tank.
- 6 Tag and disconnect and plug the hose from the return filter. Cap the fitting on the return filter housing.
- 7 Tag and disconnect and plug the supply hose for the auxiliary power unit. Cap the fitting on the hydraulic tank.
- 8 Remove the retaining fasteners from the hydraulic tank hold down straps. Remove the hold down straps from the hydraulic tank.

REV B

FUEL AND HYDRAULIC TANKS

- 9 Support the hydraulic tank with 2 lifting straps. Place one lifting strap at each end of the tank and attach the lifting straps to an overhead crane.

- 10 Remove the hydraulic tank from the machine.

⚠ WARNING Crushing hazard. The hydraulic tank could become unbalanced and fall if not properly supported and secured to the overhead crane.

- 11 Remove the suction strainers from the tank and clean them using a mild solvent.

- 12 Rinse out the inside of the tank using a mild solvent.

- 13 Install the suction strainers using pipe thread sealant on the threads.

- 14 Install the drain plug using pipe thread sealant on the threads.

- 15 Install the hydraulic tank onto the machine.

- 16 Install the two suction hoses and the supply hose for the auxiliary power unit.

- 17 Fill the tank with hydraulic oil until the level is within the top 2 inches / 5 cm of the sight gauge. Do not overfill.

- 18 Clean up any oil that may have spilled.

- 19 Open the hydraulic tank shutoff valves (if equipped).

⚠ CAUTION Component damage hazard. Be sure to open the two hydraulic tank shutoff valves (if equipped) and prime the pump after installing the hydraulic tank.

NOTICE Always use pipe thread sealant when installing the drain plug and strainers.

Hydraulic oil capacity specifications

Hydraulic tank	45 gallons 170 liters
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Hydraulic system (including tank)	55 gallons 208 liters
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Hydraulic Oil Specifications

Before serial number 3349

Hydraulic oil type	Shell Donax TG (Dexron III)
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After serial number 3348

Hydraulic oil type	Chevron Rykon MV equivalent
Approximate SAE grade	5W-20
Viscosity index rating	200

Chevron Rykon MV oil is fully compatible and mixable with Shell Donax TG (Dexron III) oils.

Genie specifications require hydraulic oils which are designed to give maximum protection to hydraulic systems, have the ability to perform over a wide temperature range, and have a minimum viscosity index rating of 150. They should provide excellent antiwear, oxidation, corrosion inhibition, seal conditioning, and foam and aeration suppression properties.

Optional fluids

Biodegradable	Petro Canada Premium ECO 46 Statoil Hydra Way Bio Pa 32 BP Biohyd SE-S
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Fire resistant	UCON Hydrolube HP-5046 Quintolubric 822
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Mineral based	Shell Tellus T32 Shell Tellus T46 Chevron Aviation A
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NOTICE Genie specifications require additional equipment and special installation instructions for the approved optional fluids. Consult the Genie Industries Service Department before use.

Turntable Rotation Components

REV A

11-1

Turntable Rotation Drive Hub Assembly

How to Remove the Turntable Rotation Drive Hub Assembly

NOTICE

When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Secure the turntable from rotating with the turntable rotation lock pin.

NOTICE

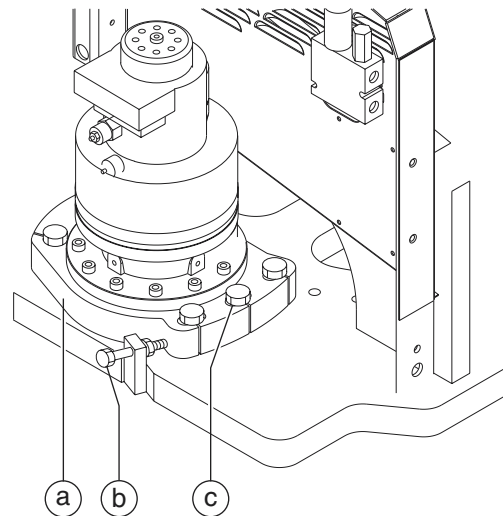
The turntable rotation lock pin is located next to the boom rest pad.

- 2 Tag, disconnect and plug the hydraulic hoses from the drive motor. Cap the fittings on the motor.

WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 3 Loosen the backlash pivot plate and adjustment bolts.



- a backlash pivot plate
- b adjustment bolt with lock nut
- c backlash pivot plate mounting bolts

- 4 Attach a suitable lifting device to the lifting eyes on the drive hub assembly.
- 5 Remove the backlash pivot plate mounting bolts. Carefully remove the drive hub assembly from the machine.

WARNING

Crushing hazard. The turntable rotation drive hub assembly could become unbalanced and fall when it is removed from the machine if not properly supported.

When installing the drive hub assembly:

- 6 Install the drive hub. Torque the back lash pivot plate mounting bolts to 260 ft-lbs / 352.5 Nm.
- 7 Install the brake and then the motor onto the drive hub. Torque the motor/brake mounting bolts to 75 ft-lbs / 102 Nm.
- 8 Adjust turntable rotation gear backlash. See 11-1, *How to Adjust the Turntable Rotation Gear Backlash*.

REV A

TURNTABLE ROTATION COMPONENTS

How to Remove the Turntable Rotation Hydraulic Motor

NOTICE

When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Secure the turntable from rotating with the turntable rotation lock pin.

NOTICE

The turntable rotation lock pin is located next to the boom rest pad.

- 2 Tag, disconnect and plug the hydraulic hoses from the drive motor. Cap the fittings on the motor.

WARNING

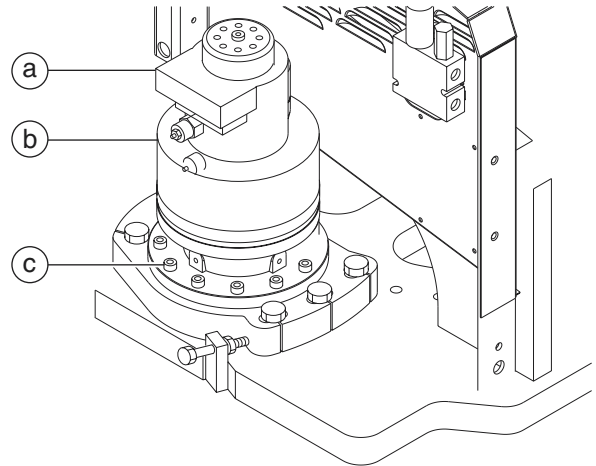
Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 3 Remove the hydraulic tube that connects from the counterbalance manifold to the brake. Cap the fittings on the brake and manifold.

WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 4 Remove the motor/brake mounting fasteners. Carefully remove the motor from the brake.



- a motor
- b drive hub
- c drive hub mounting bolts

- 5 Clean up any oil that may have spilled.

TURNABLE ROTATION COMPONENTS

REV A

How to Adjust the Turntable Rotation Gear Backlash

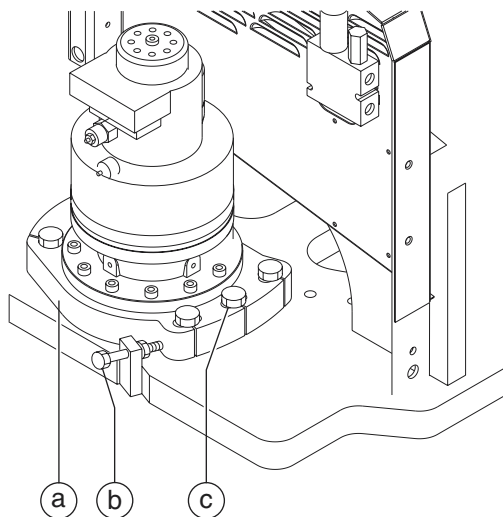
The turntable rotation drive hub is mounted on an adjustable plate that controls the gap between the rotation motor pinion gear and the turntable bearing ring gear.

NOTICE Perform this procedure with the boom between the non-steer end tires and with the machine on a firm and level surface.

- 1 Secure the turntable from rotating with the turntable rotation lock pin.

NOTICE The turntable rotation lock pin is located next to the boom rest pad.

- 2 Loosen the backlash pivot plate mounting fasteners.



- a backlash pivot plate
- b adjustment bolt with lock nut
- c backlash pivot plate mounting bolts

- 2 Push the backlash pivot plate towards the turntable as far as possible (this will push the rotation gear into the turntable bearing ring gear).
- 3 Loosen the lock nut on the adjustment bolt.
- 4 Turn the adjustment bolt clockwise until it contacts the backlash pivot plate.
- 5 Turn the adjustment bolt $\frac{1}{2}$ turn counterclockwise. Tighten the lock nut on the adjustment bolt.
- 6 Rotate the backlash pivot plate away from the turntable until it contacts the adjustment bolt. Then torque the mounting fasteners on the backlash pivot plate.
- 7 Rotate the turntable through an entire rotation. Check for tight spots that could cause binding. Readjust if necessary.

REV A

2WD Steer Axle Components

12-1 Yoke and Hub

How to Remove the Yoke and Hub

- 1 Remove the pin retaining fasteners from both the steering cylinder and the tie rod cylinder pivot pins. Use a soft metal drift to remove the pins.
- 2 Loosen the wheel lug nuts. Do not remove them.
- 3 Block the non-steer wheels and center a lifting jack of ample capacity under the steer axle.
- 4 Raise the machine approximately 6 inches / 15 cm and place blocks under the chassis for support.
- 5 Remove the lug nuts. Remove the tire and wheel assembly.
- 6 Remove the pin retaining fasteners from the yoke pivot pins.
- 7 Support and secure the yoke and hub assembly to a lifting jack.

- 8 Use a slide hammer to remove the upper yoke pivot pin, then use a soft metal drift to drive the lower yoke pivot pin down and out.
- 9 Remove the yoke and hub assembly from the machine.

CAUTION Crushing hazard. The yoke and hub assembly may become unbalanced and fall if not properly supported and secured to the lifting jack when it is removed from the machine.

Torque specifications	
Lug nut, dry	420 ft-lbs 569.5 Nm
Lug nut, lubricated	320 ft-lbs 434 Nm

How to Remove the Hub and Bearings

- 1 Loosen the wheel lug nuts. Do not remove them.
- 2 Block the non-steer wheels and center a lifting jack of ample capacity under the steer axle.
- 3 Raise the machine approximately 6 inches / 15 cm and place blocks under the chassis for support.
- 4 Remove the lug nuts. Remove the tire and wheel assembly.

2WD STEER AXLE COMPONENTS

REV A

- 5 Remove the dust cap, cotter pin and castle nut.

NOTICE

Always replace the cotter pin with a new one when installing the castle nut.

- 6 Pull the hub off the spindle. The washer and outer bearing should fall loose from the hub.
- 7 Place the hub on a flat surface and gently pry the bearing seal out of the hub. Remove the rear bearing.

How to Install the Hub and Bearings

NOTICE

When replacing a wheel bearing, both the inner and outer bearings including the pressed-in races must be replaced.

- 1 Be sure that both bearings are packed with clean, fresh grease.
- 2 Place the large inner bearing into the rear of the hub.
- 3 Press the bearing seal evenly into the hub until it is flush.
- 4 Slide the hub onto the yoke spindle.

CAUTION

Component damage hazard. Do not apply excessive force or damage to the lip of the seal may occur.

- 5 Place the outer bearing into the hub.
- 6 Install the washer and castle nut.

- 7 Tighten the castle nut to 35 ft-lbs / 47 Nm to seat the bearings.
- 8 Loosen the castle nut, then re-tighten to 8 ft-lbs / 11 Nm. Install a new cotter pin.
- 9 Install the dust cap, then the tire and wheel assembly. Torque the wheel lug nuts to 420 ft-lbs / 569.5 Nm.

Torque specifications

Lug nut, dry	420 ft-lbs 569.5 Nm
Lug nut, lubricated	320 ft-lbs 434 Nm

REV A

2WD STEER AXLE COMPONENTS

12-2 Steer Cylinder

How to Remove a Steer Cylinder

There are two identical steer cylinders that work in parallel. They are part of the same hydraulic circuit, but move in opposite directions. The tie rod cylinder maintains equal movement of the tires.

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Tag, disconnect and plug the hydraulic hoses from the steer cylinder. Cap the fittings on the cylinder.

⚠ WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 2 **4WD Models:** Remove the hose bracket mounting fastener on the steer cylinder barrel-end pivot pin.
- 3 Remove the pin retaining fasteners from the steer cylinder pivot pins. Remove the pivot pin from each end of the steer cylinder.
- 4 Remove the steer cylinder from the machine.

12-3 Tie Rod Cylinder

How to Remove the Tie Rod Cylinder

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Tag, disconnect and plug the hydraulic hoses from the tie rod cylinder. Cap the fittings on the cylinder.

⚠ WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 2 Support and secure the tie rod cylinder to a lifting jack.
- 3 Remove the pin retaining fasteners from each tie rod cylinder pivot pin.
- 4 Remove the pivot pin from each end of the tie rod cylinder.
- 5 Remove the tie rod cylinder from the machine.

⚠ CAUTION Crushing hazard. The tie rod cylinder may become unbalanced and fall if not properly supported and secured to the lifting jack when it is removed from the machine.

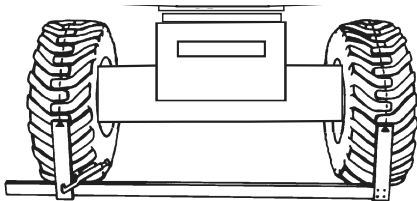
2WD STEER AXLE COMPONENTS

REV A

How to Perform the Toe-in Adjustment

NOTICE Perform this procedure on a firm, level surface. Block the non-steer tires and be sure that the machine is in the stowed position.

- 1 Straighten the steer wheels.
- 2 Measure the steer tires, front to front and back to back, using a measuring fixture.



- 3 Center a lifting jack of ample capacity under the steer axle and raise the machine until the steer tires are off the ground.
- 4 Loosen the jam nut on the adjustable end of the tie rod cylinder.
- 5 Remove the pin retaining fasteners from the adjustable end of the tie rod cylinder. Remove the pivot pin.

- 6 Slide the tie rod cylinder off of the yoke and adjust it by turning the end.

NOTICE One half turn on the adjustable end equals approximately $\frac{1}{8}$ inch / 3.2 mm change in the front and rear measurements.

- 7 Slide the tie rod cylinder onto the yoke. Install the pivot pin and the pin retaining fastener.
- 8 Tighten the jam nut against the tie rod cylinder.
- 9 Lower the machine and recheck the front and back measurements (step 2). If further adjustment is needed, repeat steps 3 through 8.

Toe-in specification	$0 \pm \frac{1}{8}$ inch / 6.35 mm
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REV A

4WD Steer Axle Components

13-1

Yoke and Drive Hub

How to Remove the Yoke and Drive Hub Assembly

NOTICE

When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Remove the pin retaining fasteners from both the steer cylinder and the tie rod cylinder pivot pins. Remove the pins.
- 2 Tag, disconnect and plug the hydraulic hoses from the drive motor. Cap the fittings on the drive motor.

⚠WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 3 Loosen the wheel lug nuts. Do not remove them.
- 4 Block the non-steer wheels, and center a lifting jack of ample capacity under the steer axle.

- 5 Raise the machine approximately 6 inches / 15 cm and place blocks under the chassis for support.
- 6 Remove the lug nuts. Remove the tire and wheel assembly.
- 7 Remove the hydraulic hose clamp retaining fastener from the top of the yoke pivot pin.
- 8 Remove the drive motor mounting fasteners.
- 9 Slide the drive motor shaft out of the drive hub and remove the drive motor from the machine.
- 10 Remove the pin retaining fasteners from the upper and lower yoke pivot pins.
- 11 Support and secure the yoke and drive hub assembly to a lifting jack.
- 12 Use a slide hammer to remove the upper yoke pivot pin. Use a soft metal drift to drive the lower yoke pivot pin down and out.

⚠WARNING

Crushing hazard. The yoke and drive hub assembly could become unbalanced and fall when the yoke pivot pins are removed if not properly supported and secured to the lifting jack.

4WD STEER AXLE COMPONENTS

REV A

13 Place the yoke and drive hub assembly on a flat surface with the drive hub facing down.

14 Remove the drive hub mounting fasteners that attach the drive hub to the yoke. Remove the yoke from the drive hub.

NOTICE Replace the thrust washer when installing the yoke and drive hub assembly onto the axle.

Torque specifications

Lug nut, dry	420 ft-lbs 569.5 Nm
Lug nut, lubricated	320 ft-lbs 434 Nm
Drive hub mounting bolts, dry	165 ft-lbs 224 Nm
Drive hub mounting bolts, lubricated	124 ft-lbs 168 Nm
Drive motor mounting bolts, dry	125 ft-lbs 169 Nm
Drive motor mounting bolts, lubricated	94 ft-lbs 127 Nm

13-2 Drive Motor

How to Remove a Drive Motor

CAUTION Component damage hazard. Repairs to the motor should only be performed by an authorized Rexroth dealer.

CAUTION Component damage hazard. The work area and surfaces where this procedure will be performed must be clean and free of debris that could get into the hydraulic system and cause severe component damage. Dealer service is recommended.

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Extend the axles.
- 2 Remove the drive motor access covers from both sides of the inner axle.

REV A

4WD STEER AXLE COMPONENTS

- 3 Tag, disconnect and plug the hydraulic hoses from the drive motor. Cap the fittings on the drive motor.

⚠ WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 4 Remove the drive motor mounting fasteners.
- 5 Slide the drive motor shaft out of the drive hub, and remove the drive motor from the machine.

Torque specifications

Drive motor mounting bolts, dry	125 ft-lbs 169 Nm
Drive motor mounting bolts, lubricated	94 ft-lbs 127 Nm

13-3 Drive Hub

How to Remove a Drive Hub

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Remove the drive motor. See 13-2, *How to Remove a Drive Motor*.
- 2 Loosen the wheel lug nuts. Do not remove them.
- 3 Center a lifting jack of ample capacity under the non-steer axle.
- 4 Raise the machine approximately 6 inches / 15 cm and place blocks under the chassis for support.
- 5 Remove the wheel lug nuts, then the tire and wheel assembly.

4WD STEER AXLE COMPONENTS

REV A

- 6 Place a second lifting jack under the drive hub for support and secure the drive hub to the lifting jack.
- 7 Remove the drive hub mounting bolts that attach the drive hub to the axle. Remove the drive hub.

WARNING Crushing hazard. The drive hub could become unbalanced and fall if not properly supported and secured to the lifting jack when removed from the machine.

Torque specifications

Lug nut, dry	420 ft-lbs 569.5 Nm
Lug nut, lubricated	320 ft-lbs 434 Nm
Drive hub mounting bolts, dry	165 ft-lbs 224 Nm
Drive hub mounting bolts, lubricated	124 ft-lbs 168 Nm
Drive motor mounting bolts, dry	125 ft-lbs 169 Nm
Drive motor mounting bolts, lubricated	94 ft-lbs 127 Nm

13-4 Steer Cylinders

How to Remove a Steer Cylinder

This procedure is the same as the 2WD procedure. See 12-2, *How to Remove a Steer Cylinder*.

13-5 Tie Rod Cylinder

How to Remove the Tie Rod Cylinder

This procedure is the same as the 2WD procedure. See 12-3, *How to Remove the Tie Rod Cylinder*.

How to Perform the Toe-in Adjustment

This procedure is the same as the 2WD procedure. See 12-3, *How to Perform the Toe-in Adjustment*.

REV A

Non-steer Axle Components

14-1

Drive Motor

How to Remove a Drive Motor

This procedure is the same as the steer axle procedure. See 13-2, *How to Remove a Drive Motor*.

14-2

Drive Hub

How to Remove a Drive Hub

This procedure is the same as the steer axle procedure. See 13-3, *How to Remove a Drive Hub*.

Oscillating Axle Components

REV A

15-1

Oscillate Axle Cylinders

The oscillating axle cylinders extend and retract between the drive chassis and the axle to maintain a level chassis while driving over uneven terrain. The cylinders are equipped with counterbalance valves to prevent movement in the event of a hydraulic hose failure.

How to Remove an Oscillate Axle Cylinder

NOTICE Perform this procedure on firm, level surface with the boom in the stowed position.

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

- 1 Rotate the turntable until the boom is between the steer tires.
- 2 Remove the fasteners from the drive chassis cover at the steer end. Remove the cover.

- 3 Tag, disconnect and plug the oscillating axle cylinder hydraulic hoses. Cap the fittings on the cylinder.

WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 4 Remove the pin retaining fasteners from the rod-end pivot pin. Use a soft metal drift to remove the pin.
- 5 Attach a lifting strap from an overhead crane to the barrel end of the oscillating cylinder.
- 6 Remove the pin retaining fasteners from the barrel-end pivot pin. Use a soft metal drift to remove the pin.
- 7 Remove the cylinder from the machine.

WARNING Crushing hazard. The oscillate cylinder could become unbalanced and fall if not properly attached to the overhead crane when removed from the machine.

REV A

OSCILLATING AXLE COMPONENTS

15-2 Valve Adjustments - Oscillate Directional Valve

How to Adjust the Oscillate Relief Valve Pressure

- 1 Remove the drive chassis cover from the non-steer end of the machine.
- 2 Connect a 0 to 2000 psi / 0 to 150 bar pressure gauge to the diagnostic nipple located near the oscillate directional valve.
- 3 Disconnect the directional valve linkage, by removing the clevis yoke from the drive chassis.
- 4 Start the engine from the platform controls.
- 5 With the engine running, manually activate the valve and observe the pressure reading on the pressure gauge.

Oscillate relief valve specification

Pressure	850 psi 58.6 bar
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- 6 Turn the engine off.
- 7 Locate the relief valve on the directional valve and remove the cap.

- 8 Adjust the internal screw. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure. Install the valve cap.

WARNING Tip-over hazard. Do not adjust the relief valve higher than specified.

- 9 Repeat steps 4 through 7 and manually activate the valve to confirm the valve pressure.
- 10 Turn the engine off, remove the pressure gauge and assemble the directional valve linkage.
- 11 Install the cover on the non-steer end of the drive chassis.

Extendable Axle Components

REV A

16-1

Extendable Axles

The extendable axles are used to widen the foot print of the drive chassis for stability.

How to Shim an Extendable Axle

NOTICE Measure each wear pad. Replace the wear pad if it is less than 1/2 inch / 12.7 mm thick. If the pad is more than 1/2 inch / 12.7 mm thick, perform the following procedure.

- 1 Extend the axles.

Side wear pads:

- 2 Loosen the side wear pad mounting fasteners on the outer axle.
- 3 Install the new shims under the wear pads to obtain zero clearance and zero drag.
- 4 Use a round punch to align the shim to the wear pad. Tighten the mounting fasteners.
- 5 Extend and retract the axle through an entire cycle. Check for tight spots that could cause binding or scraping.

NOTICE Always maintain squareness between the inner and outer axle tubes.

Top and bottom wear pads:

- 2 Center a lifting jack of ample capacity under the outer axle that needs to be shimmed. Do not raise the machine.
- 3 Block the wheels at the opposite end of the machine.
- 4 Raise the machine just until the weight of the machine is relieved off of the inner axle. Do not raise the wheels off of the ground.
- 5 Remove the drive chassis cover.
- 6 Loosen the wear pad mounting fasteners from the top and bottom wear pads on both the inner and outer axles.
- 7 Install the new shims under the wear pads of the inner and outer axle to obtain zero clearance and zero drag.
- 8 Use a round punch through the wear pad mounting holes to align the shims with the wear pad. Install the wear pad retaining fasteners.
- 9 Extend and retract the axle through an entire cycle. Check for tight spots that could cause binding or scraping of the axle tubes.

NOTICE Always maintain squareness between the inner and outer axle tubes.

REV A

EXTENDABLE AXLE COMPONENTS

How to Remove an Inner Axle

NOTICE When removing a hose assembly or fitting, the O-ring on the fitting and/or hose end must be replaced and then torqued to specification during installation. Refer to Section Two, *Hydraulic Hose and Fitting Torque Specifications*.

NOTICE Perform this procedure with the boom in the stowed position and boom between the non-steer end tires.

- 1 Extend the axles.

Steer end:

- 2 Remove the drive chassis cover.
- 3 **2WD models:** Remove the yoke and hub assembly. See 12-1, *How to Remove the Yoke and Hub*.
- 4WD models:** Remove the yoke and drive hub. See 13-1, *How to Remove the Yoke and Drive Hub Assembly*.
- 4 **4WD models:** Remove the hose bracket from the steer cylinder barrel-end pivot pin.
- 5 Remove the remaining steer cylinder pivot pin. Remove the steer cylinder and lay off to the side.

CAUTION Component damage hazard. Hoses can be damaged if they are kinked or pinched.

- 6 Remove the steer cylinder mounting lug from the inner axle.
- 7 Place blocks under the axle extension cylinder for support.
- 8 Remove the external snap ring from the axle extension cylinder pivot pin. Use a soft metal drift to remove the pin.
- 9 Attach a lifting strap from an overhead crane to the inner axle for support.
- 10 Remove all wear pads from the outer axle.

NOTICE Pay careful attention to the location and number of shims used when removing the wear pads.

- 11 Carefully remove the inner axle from the outer axle.

WARNING Crushing hazard. The inner axle could become unbalanced and fall if not properly supported when it is removed from the outer axle.

Non-steer end:

- 2 Remove the drive chassis cover.
- 3 Loosen the wheel lug nuts. Do not remove them.
- 4 Block the steer tires and center a lifting jack under the outer axle.
- 5 Raise the machine approximately 6 inches / 15 cm and place blocks under the chassis for support.

EXTENDABLE AXLE COMPONENTS

REV A

- 6 Remove the lug nuts. Remove the tire and wheel assembly.
- 7 Remove the drive motor covers from both sides of the inner axle.
- 8 Tag, disconnect and plug the hydraulic hoses at the drive motor. Cap the fittings on the drive motor.

⚠ WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 9 Place blocks under the axle extension cylinder for support.
- 10 Remove the external snap rings from the axle extension cylinder pivot pin of the inner axle to be removed. Use a soft metal drift to remove the pin.
- 11 Attach a strap from a lifting device through the inner axle close to the drive hub for support.

- 12 Remove all wear pads from the outer axle.

NOTICE Pay careful attention to the location and number of shims used when removing the wear pads.

- 13 Carefully remove the inner axle from the outer axle.

⚠ WARNING Crushing hazard. The inner axle could become unbalanced and fall if not properly supported when it is removed from the outer axle.

CAUTION Component damage hazard. Hoses can be damaged if they are kinked or pinched.

16-2 Axle Extension Cylinder

How to Remove the Axle Extension Cylinder

- 1 Extend the axles.

Steer end:

- 2 Remove the engine side yoke and hub.

2WD models: Remove the yoke and hub assembly. See 12-1, *How to Remove the Yoke and Hub*.

4WD models: Remove the yoke and drive hub. See 13-1, *How to Remove the Yoke and Drive Hub Assembly*.

REV A

EXTENDABLE AXLE COMPONENTS

- 3 Remove the drive chassis cover.
- 4 Remove the access cover at the end of the inner axle.
- 5 Tag, disconnect and plug the axle extend cylinder hydraulic hoses. Cap the fittings on the cylinder.

⚠WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 6 Place blocks under the axle extension cylinder for support.
- 7 Remove the external snap rings from the axle extension cylinder pivot pins. Use a soft metal drift to remove the pins.
- 8 Carefully remove the axle extension cylinder from the machine by pulling it out the end of the inner axle.

⚠WARNING Crushing hazard. The axle extension cylinder could become unbalanced and fall if not properly supported when it is removed from the axle.

Non-steer end:

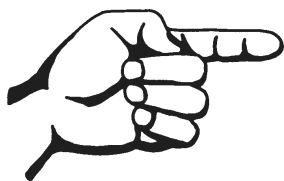
- 2 Remove the drive chassis cover.
- 3 Remove the drive motor access covers from both sides of the axle.

- 4 Remove the drive motor. See 14-1, *How to Remove a Drive Motor*.
- 5 Remove the drive hub. See 14-2, *How to Remove a Drive Hub*.
- 6 Tag, disconnect and plug the axle extend cylinder hydraulic hoses from RAE and RAR ports on the axle select manifold. Cap the fittings on the manifold.

⚠WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

- 7 Place blocks under the axle extension cylinder for support.
- 8 Remove the external snap rings from the axle extension cylinder pivot pins. Use a soft metal drift to remove the pins.
- 9 Carefully remove the axle extension cylinder from the machine by pulling it out the end of the inner axle.

⚠WARNING Crushing hazard. The axle extension cylinder could become unbalanced and fall if not properly supported when it is removed from the axle.



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Fault Codes



Observe and Obey:

- ☑ Troubleshooting and repair procedures shall be completed by a person trained and qualified on the repair of this machine.
- ☑ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☑ Repair any machine damage or malfunction before operating the machine.
- ☑ Unless otherwise specified, perform each repair procedure with the machine in the following configuration:
 - Machine parked on a firm level surface
 - Boom in the stowed position
 - Turntable rotated with the boom between the non-steer wheels
 - Turntable secured with the turntable rotation lock pin
 - Key switch in the OFF position with the key removed
 - Wheels chocked

Before Troubleshooting:

- ☑ Read, understand and obey the safety rules and operating instructions printed in the *Genie S-80 and Genie S-85 Operator's Manual*.
- ☑ Be sure that all necessary tools and test equipment are available and ready for use.
- ☑ Read each appropriate flow chart thoroughly. Attempting shortcuts may produce hazardous conditions.
- ☑ Be aware of the following hazards and follow generally accepted safe workshop practices.

⚠ DANGER

Crushing hazard. When testing or replacing any hydraulic component, always support the structure and secure it from movement.

⚠ WARNING

Electrocution hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

⚠ WARNING

Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

NOTICE

Perform all troubleshooting on a firm level surface.

NOTICE

Two persons may be required to safely perform some troubleshooting procedures.

FAULT CODES

REV A

Fault Codes - Control System

How to Retrieve Control System Fault Codes

NOTICE At least one fault code is present when the alarm at the platform controls produces two short beeps every 30 seconds for 10 minutes.

NOTICE Perform this procedure with the engine off, the key switch turned to platform controls and the red Emergency Stop button pulled out to the on position at both the ground and platform controls.

- 1 Open the platform control box lid.

⚠ WARNING Electrocutation hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

- 2 Locate the red and yellow fault LEDs on the ALC-500 circuit board inside the platform control box. Do not touch the circuit board.

CAUTION Component damage hazard. Electrostatic discharge (ESD) can damage printed circuit board components. If the circuit board does need to be handled, maintain firm contact with a metal part of the machine that is grounded at all times when handling the printed circuit board OR use a grounded wrist strap.

- 3 **Determine the error source:** The red LED indicates the error source and will flash two separate codes. The first code will indicate the first digit of the two digit code, flashing once per second. It will then pause for 1.5 seconds and flash the second digit once per 0.5 second.

NOTICE When the red LED is flashing the code, the yellow LED will be on solid.

- 4 **Determine the error type:** The yellow LED indicates the error type and will flash two separate codes. The first code will indicate the first digit of the two digit code, flashing once per second. It will then pause for 1.5 seconds and flash the second digit once per 0.5 second.

NOTICE When the yellow LED is flashing the code, the red LED will be on solid.

- 5 Use the fault code table on the following pages to aid in troubleshooting the machine by pinpointing the area or component affected.

Fault Code Chart

REV A

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
21	Boom 1 Joystick (primary boom up/ down)	11	Value at 5V	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		12	Value too high		
		15	Value too low		
		16	Value at 0V		
		17	Not calibrated	Joystick speed and direction frozen at zero and neutral.	Calibrate joystick.
		18	Just calibrated	Initiate 1-second beep of alarm.	Self-clearing. (transient)
22	Boom 1 directional valves	21	Fault	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
23	Boom 1 flow control valve	12	Value too high	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		15	Value too low		
		17	Not calibrated	Normal function except threshold for one or both directions is zero.	Calibrate valve thresholds.
		18	Just calibrated		Self-clearing. (transient)
31	Boom 2 Joystick (secondary boom up/down or primary boom extend/retract)	11	Value at 5V	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		12	Value too high		
		15	Value too low		
		16	Value at 0V		
		17	Not calibrated	Joystick speed and direction frozen at zero and neutral.	Calibrate joystick.
		18	Just calibrated	Initiate 1 second beep of alarm.	Self-clearing. (transient)
32	Boom 2 directional valves	21	Fault	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.



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FAULT CODE CHART

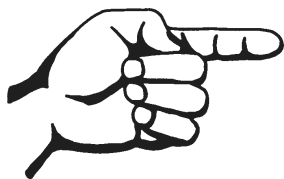
REV A

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
33	Boom 2 flow control valve	12	Value too high	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		15	Value too low		
		17	Not calibrated	Normal function except threshold for one or both directions is zero.	Calibrate valve thresholds.
		18	Just calibrated		Self-clearing. (transient)
41	Turntable rotate joystick	11	Value at 5V	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		12	Value too high		
		15	Value too low	Joystick speed and direction frozen at zero and neutral.	Calibrate joystick.
		16	Value at 0V		
		17	Not calibrated	Initiate 1-second beep of alarm.	Self-clearing. (transient)
		18	Just calibrated		
42	Turntable rotate directional valves	21	Fault	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
43	Turntable rotate flow control valve	12	Value too high	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		15	Value too low		
		17	Not calibrated	Normal function except threshold for one or both directions is zero.	Calibrate valve thresholds.
		18	Just calibrated		Self-clearing. (transient)
44	Drive enable override switches	21	Fault	Enable override direction is frozen at neutral.	Power up controller with problem corrected.

REV A

FAULT CODE CHART

Error Source		Error Type		Condition	Solution
ID	Name	ID	Name		
51	Drive joystick	11	Value at 5V	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		12	Value too high		
		15	Value too low		
		16	Value at 0V		
		17	Not calibrated	Joystick speed and direction frozen at zero and neutral.	Calibrate joystick
		18	Just calibrated	Initiate 1-second beep of alarm.	Self-clearing. (transient)
53	Drive flow valve (EDC)	12	Value too high	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		15	Value too low		
		17	Not calibrated	Normal function except threshold for one or both directions is zero.	Calibrate valve thresholds
		18	Just calibrated		Self-clearing. (transient)
54	Drive brake valve	21	Fault	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
55	High speed drive motor Valve	21	Fault	Motor speed frozen in the low state. Alarm sounds indicating fault.	Power up controller with problem corrected.
61	Steer joystick	11	Value at 5V	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.
		12	Value too high		
		15	Value too low		
		16	Value at 0V		
		17	Not calibrated	Joystick speed and direction frozen at zero and neutral.	Calibrate Joystick
		18	Just calibrated	Initiate 1-second beep of alarm.	Self-clearing. (transient)
62	Steer directional valves	21	Fault	Limited speed and direction frozen at zero and neutral. Alarm sounds indicating fault.	Power up controller with problem corrected.



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Schematics



Observe and Obey:

- ☑ Troubleshooting and repair procedures shall be completed by a person trained and qualified on the repair of this machine.
- ☑ Immediately tag and remove from service a damaged or malfunctioning machine.
- ☑ Repair any machine damage or malfunction before operating the machine.

Before Troubleshooting:

- ☑ Read, understand and obey the safety rules and operating instructions printed in the *Genie S-80 and Genie S-85 Operator's Manual*.
- ☑ Be sure that all necessary tools and test equipment are available and ready for use.

About This Section

There are two groups of schematics in this section. An illustration legend precedes each group of drawings.

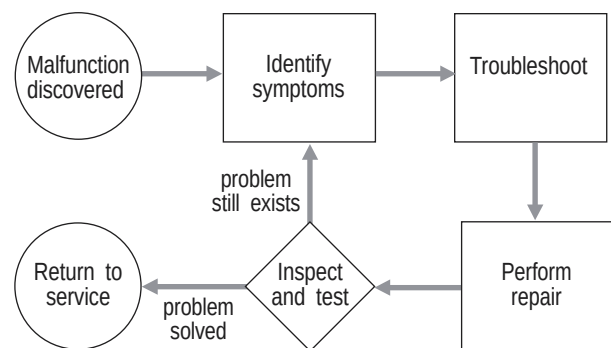
Electrical Schematics

⚠ WARNING Electrocution hazard. Contact with electrically charged circuits may result in death or serious injury. Remove all rings, watches and other jewelry.

Hydraulic Schematics

⚠ WARNING Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

General Repair Process



Electrical Components (before serial number 3577)

REV A

Item	Description	Genie Part Number	Manufacturer	Manufacturer Part Number	Qty
B1	Battery, 1000 CCA, 12V DC ..	30143	Trojan	C31XH-2	1
B2	Battery, 1000 CCA, 12V DC ..	67325	Trojan	C31XH-2 w/studs	1
B3	Batteryseparator, 12V DC	61343	Sure Power Industries	1314	1
CB1, CB2	Circuit breaker, 15A	24018	ETA	45-700-IG1-P10	2
CB3	Circuit breaker, 20A	47899	ETA	45-700-IG1-P10	1
CR1, 2, 3, 5, 8, 17, 28 and CR29	Relay, SPDT, 12V DC	34052	Potter-Brumfield	VF4-15F11-CO5	5
CR19 and 26 ..	Relay, SPDT, 12V DC	19274	Potter-Brumfield	VF4-45F11-CO5	2
Diode	Diode, 6 amp, 200 PIV	45782	Diodes Inc.	6A2-B	22
FB	Flashing beacon	56704	ECCO Electronic Controls ..	6400A-GEN2	2
FS1	Foot switch	13482	Linemaster Switch Corp.	632-S	1
G1	Gauge - Voltage	53761	VDO	33203000IC	1
G2	Gauge - Oil Pressure	53758	VDO	350030021IC	1
G3	Gauge - Temperature	53759	VDO	310030023C	1
G6	Hour meter	19506	ENM Corporation	T40A4508	1
H1	Alarm, Warble tone	45383	Floyd Bell Inc.	MW09-530-Q	1
H2	Horn, 12V DC	81578	Hella	95346	1
H3	Alarm - Intermittent	18963	Floyd Bell Inc.	XB-09-630-Q(S)	1
H4	Alarm - Chime Tone	45462	Floyd Bell Inc.	CH-09-525-Q(M)	1
JC1	Joystick - Single Axis	62391	Sauer Danfoss	K26520	1
JC2, JC3	Joystick - Multi-axis	62390	Sauer Danfoss	K26519	2
KS1	Contact - Key Switch, N.O.	66816	Telemecanique	ZBE101	4
L1, L2, L28 and L40	LED - Red, 12V DC	56298	HD Campell	LE67C39007	3
P1	Contact, N.C. (platform controls)	29732	Telemecanique	ZB2-BE102	2

This list continues on the next page.

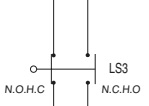
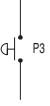
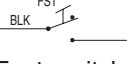
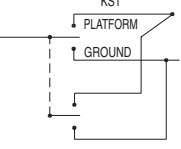
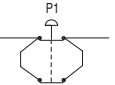
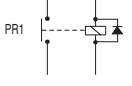
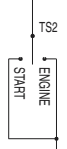
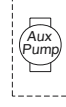
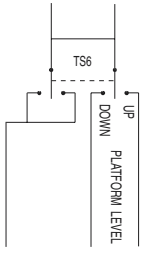
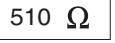
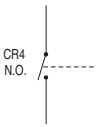
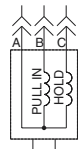
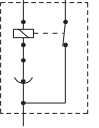
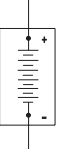
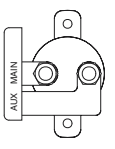
REV A

ELECTRICAL COMPONENTS

Item	Description	Genie Part Part Number	Manufacturer	Manufacturer Part Number	Qty
P2	Contact, N.C. (ground controls)	66818	Telemecanique	ZBE102	2
P3	Contact, N.O.	45081	Telemecanique	ZB2-BE101	1
R2	Resistor, 10 Ω 25 watt	27287	Dale	RH25-10R-1%	1
R3	Resistor, 5 Ω 20 watt	40614	Dale	RH25-5R-1%	1
TS1, TS51	Toggle switch, DPST 2 position momentary	13480	Microswitch Control Inc.	2NT1-8	2
TS2, 6, 9, 15, 52, 54, 56 and TS59	Toggle switch, SPDT 3 position momentary	13037	Microswitch Control Inc.	1NT1-7	7
TS48	Toggle switch, DPST 2 position maintained	27378	Microswitch Control Inc.	2NT1-3	2
TS4	Toggle switch, DPDT 3 position maintained	13038	Microswitch Control Inc.	2NT1-1	1
TS7, 16, 57, 61, 62 and TS63	Toggle switch, DPDT 3 position momentary	16397	Microswitch Control Inc.	2NT1-7	6
TS3, 14, 47 and TS53	Toggle switch, SPDT 2 position maintained	56457	Microswitch Control Inc.	1NT1-3	1

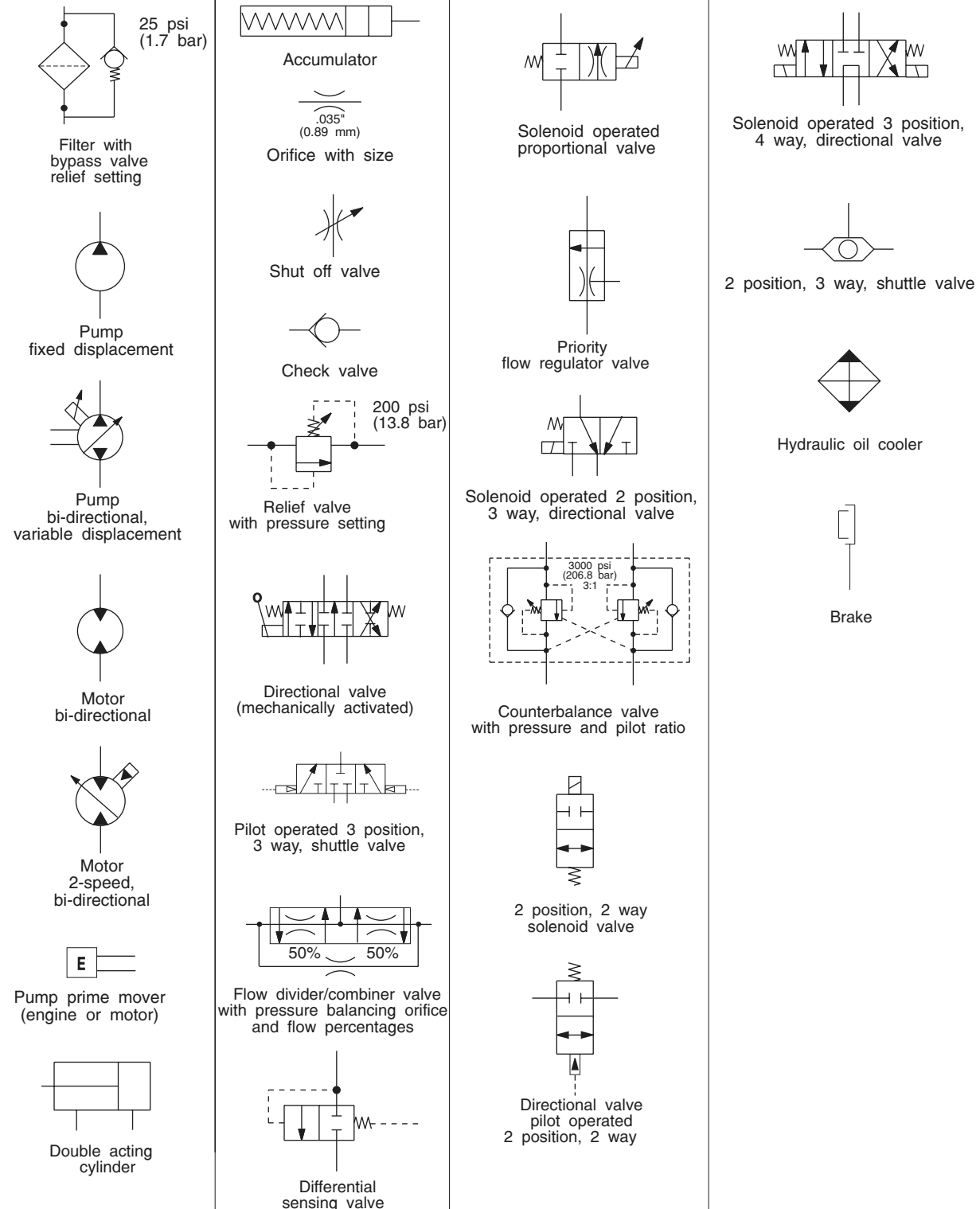
Electrical Symbols Legend

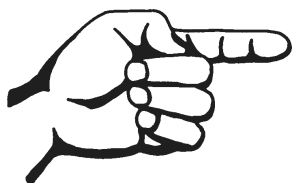
REV A

				
Quick disconnect terminal	Coil solenoid or relay	Limit switch	Horn button normally open	Foot switch
				
T-circuits connect at terminal	Horn or alarm	Key switch	Oil temperature switch normally open	Emergency Stop button normally closed
				
T-circuits connect	Flashing beacon	Power relay	Coolant temperature switch normally open	Hydraulic oil cooling fan
				
Connection no terminal	Gauge	Toggle switch SPDT	Oil pressure switch normally closed	Auxiliary pump
				
Circuits crossing no connection	Hour meter	Toggle switch DPDT	Gauge sending unit	Resistor with ohm value
				
Diode	LED	Control relay contact normally open	Fuel or RPM solenoid	Tilt sensor
				
Battery	Fuse with amperage	Coil		
				
Battery separator	Starting aid: glow plug or flame ignitor			
				
Circuit breaker with amperage				

Hydraulic Symbols Legend

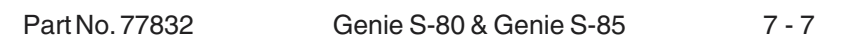
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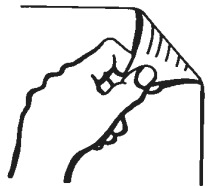
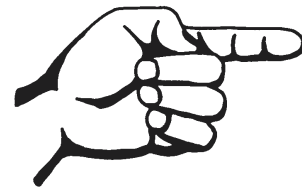
GM 3.0L Engine Wiring Harness



GM 3.0L Engine Wiring Harness



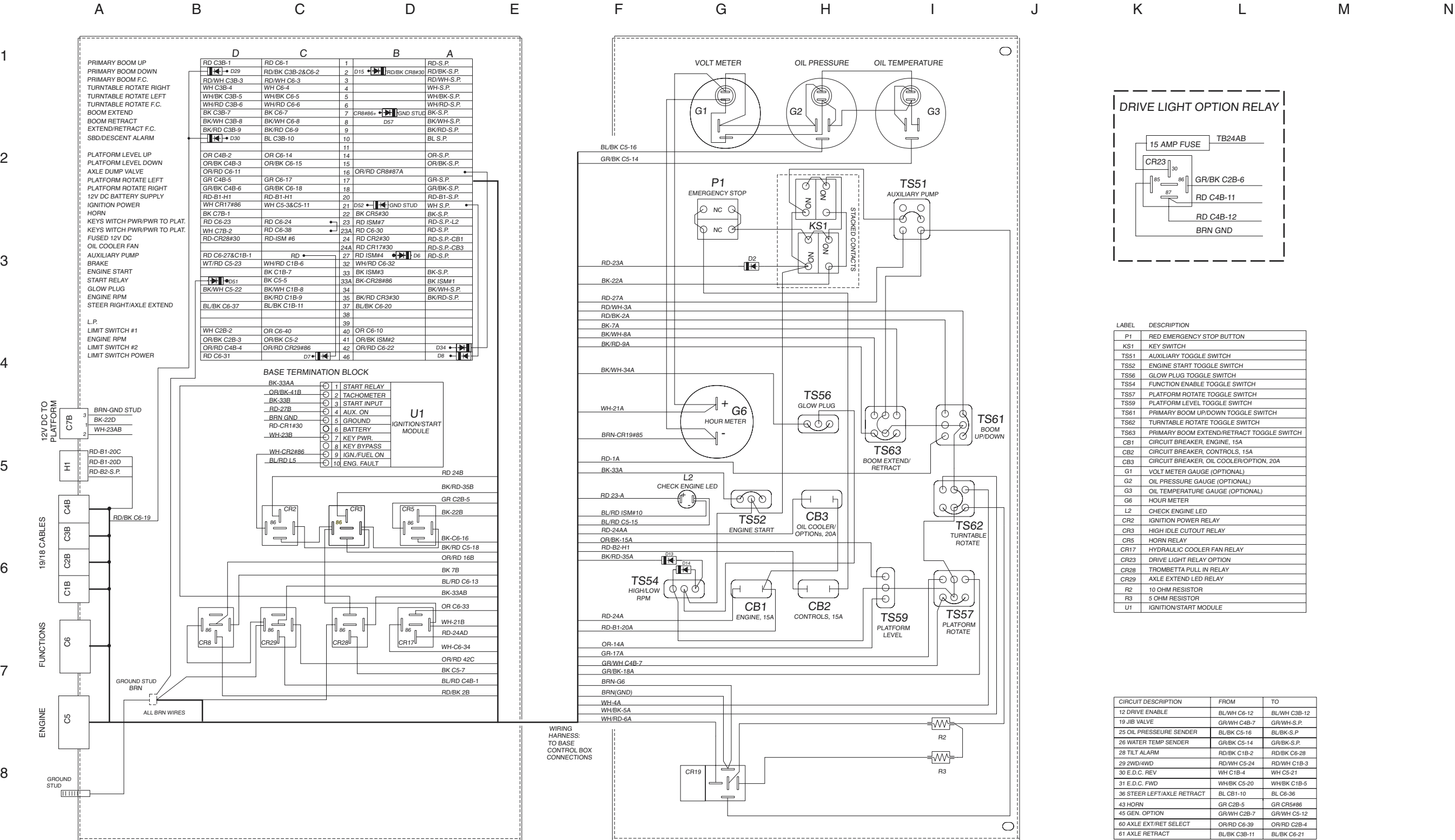
Ground Control Box Wiring Diagram, S-80
Deutz F4L 913 Models (before serial number 3577)



Ground Control Box Wiring Diagram, S-80

Deutz F4L 913 Models (before serial number 3577)

REV A

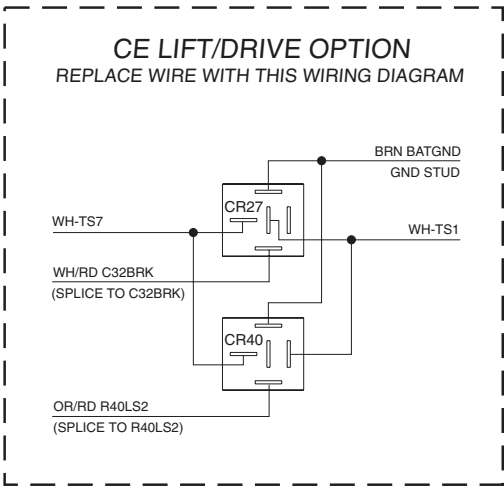
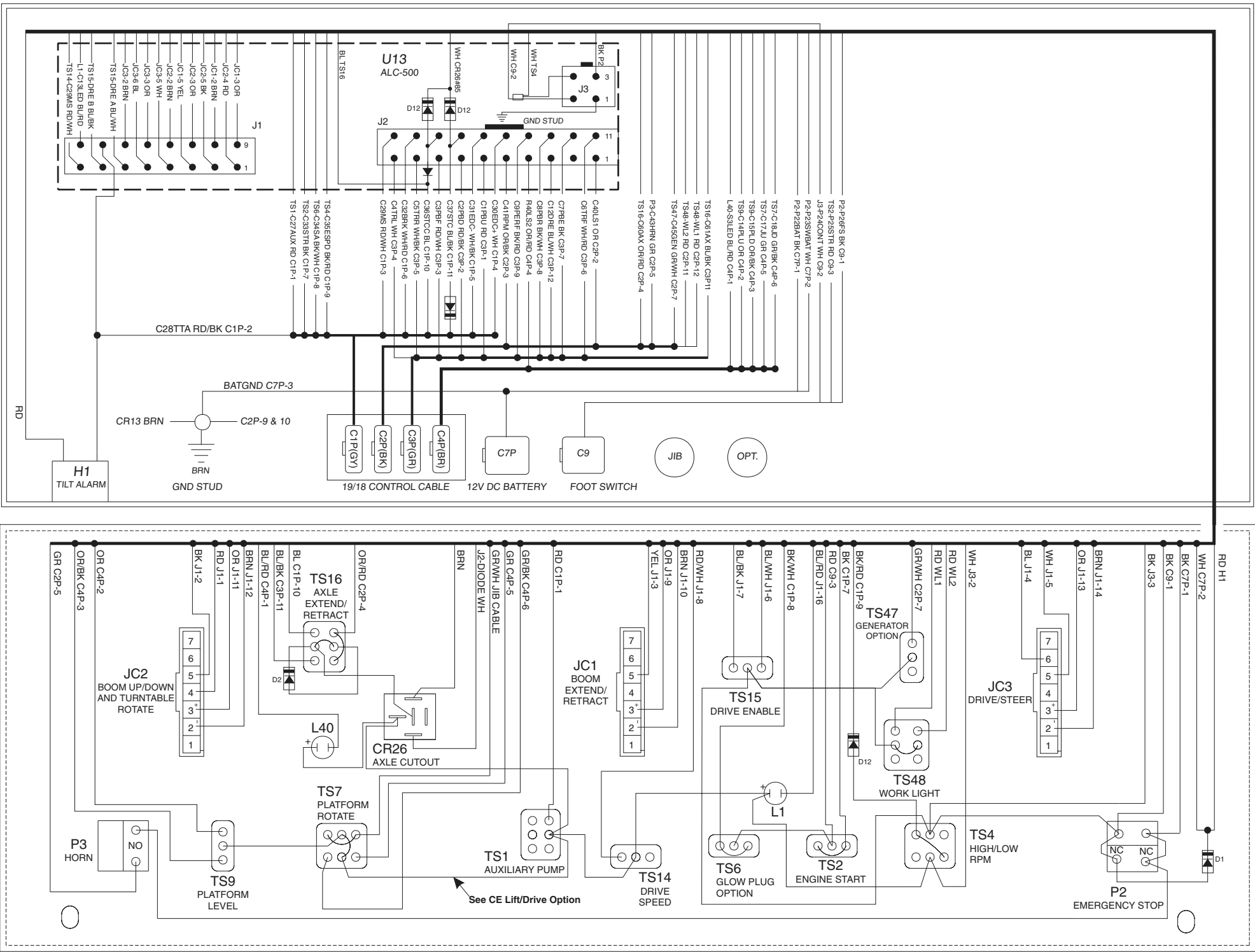


REV A

Platform Control Box Wiring Diagram, S-80
Deutz F4L 913 Models (before serial number 3577)

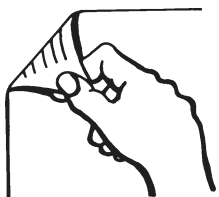
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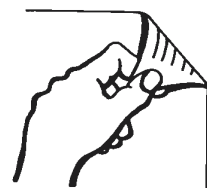
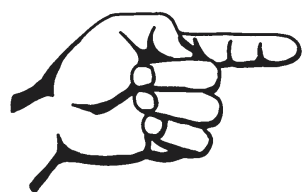
COMPONENT INDEX	
P2	EMERGENCY STOP BUTTON
P3	HORN SWITCH
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START SWITCH
TS6	GLOW PLUG OPTION
TS4	HIGH RPM SWITCH
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
L1	DRIVE ENABLE LED
L40	AXLE EXTENDED LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM EXTEND/RETRACT
JC2	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNTABLE ROTATE
CR26	AXLE CUT-OUT RELAY
U13	ALC500
H1	TILT ALARM



Platform Control Box Wiring Diagram, S-80

Deutz F4L 913 Models (before serial number 3577)

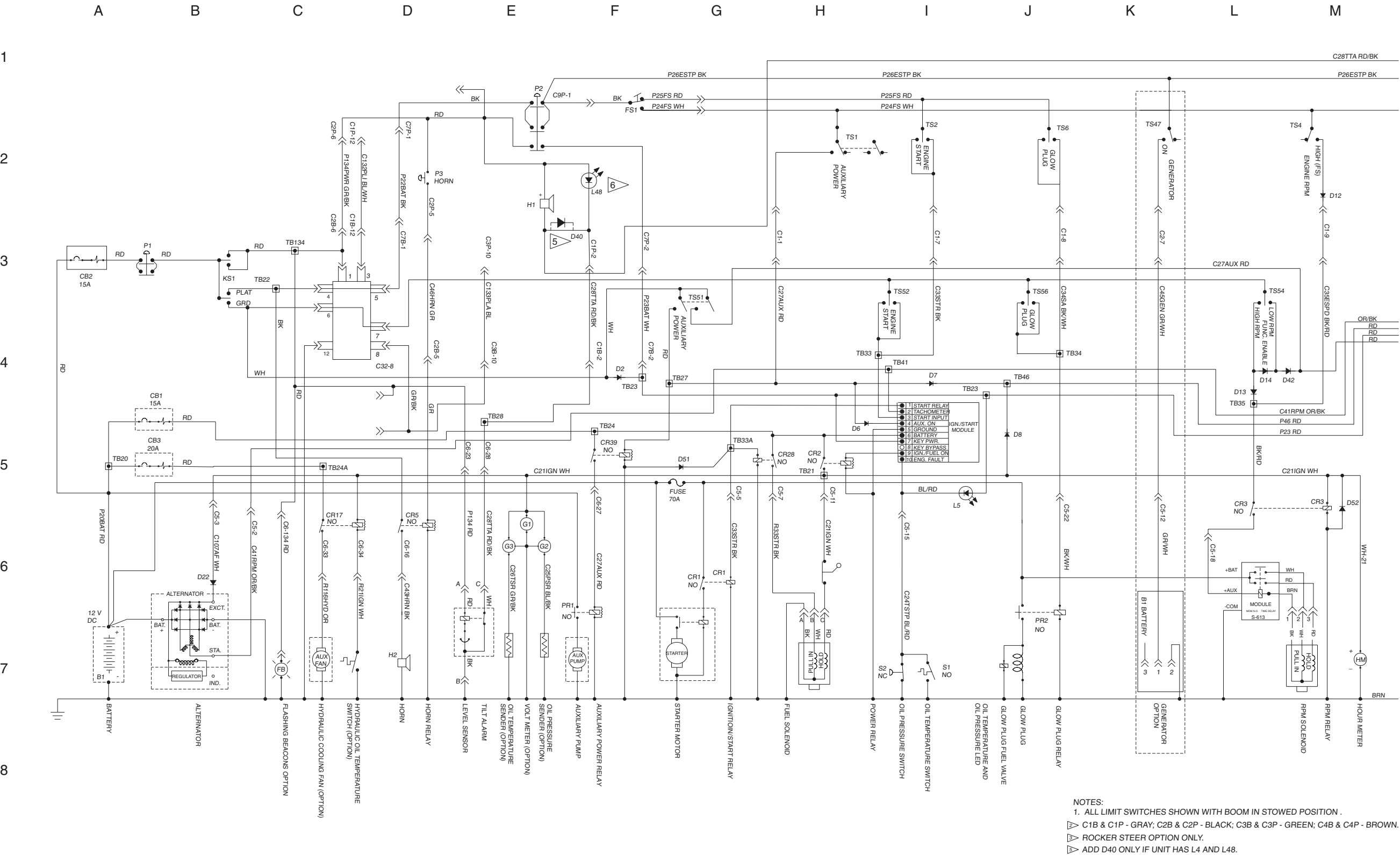




Electrical Schematic, S-80

Deutz F4L 913 Models (after serial number 3576)

REV A



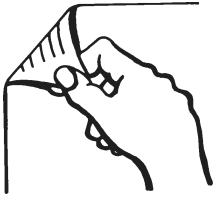
Electrical Schematic, S-80

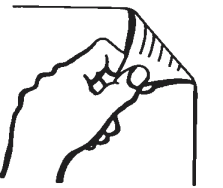
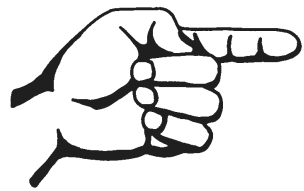
Deutz F4L 913 Models (after serial number 3576)



Electrical Schematic, S-80

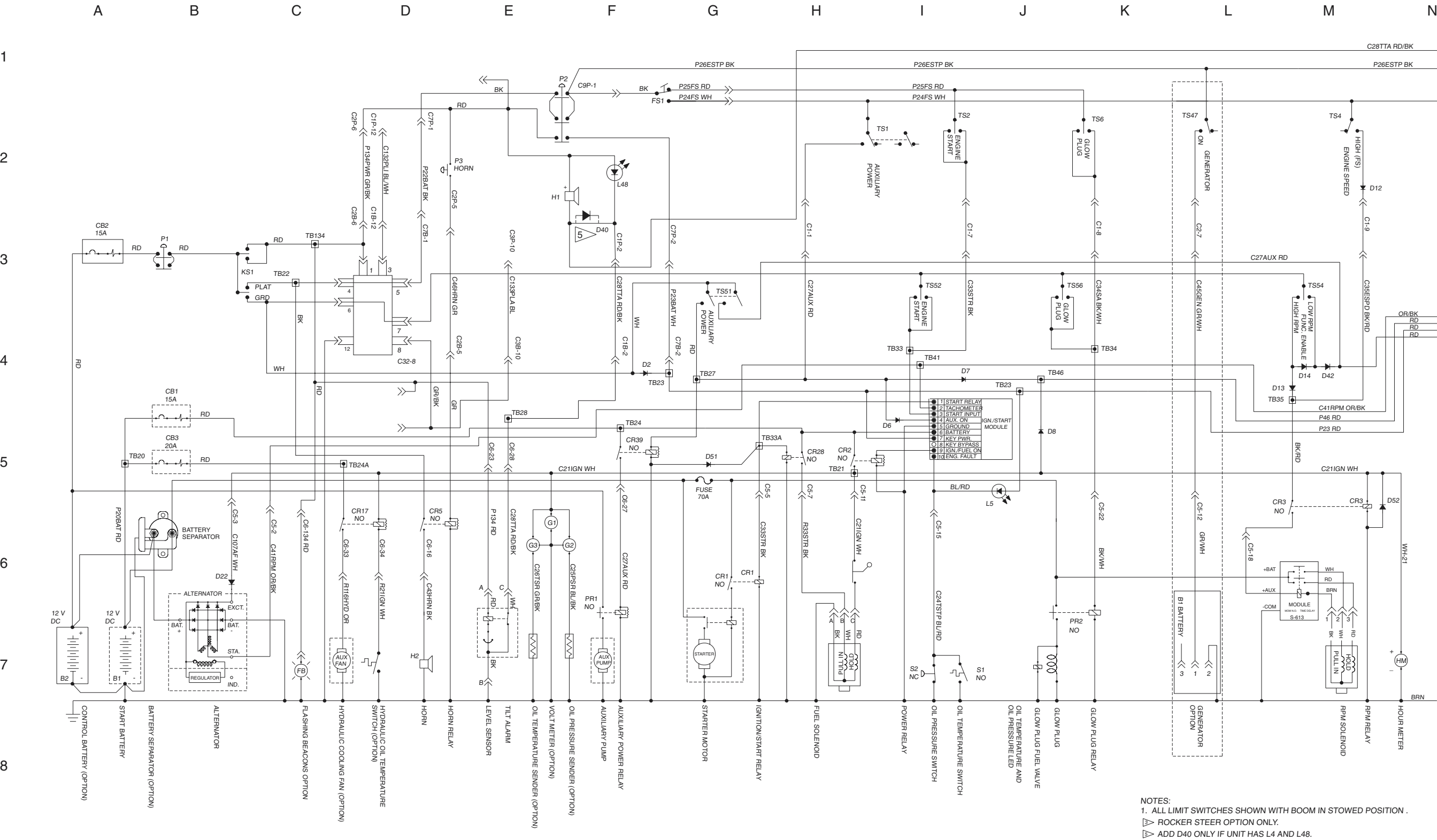
Deutz F4L 913 Models (after serial number 3576)





Electrical Schematic, S-80 with Dual Battery Option
Deutz F4L 913 Models (after serial number 3576)

REV A1

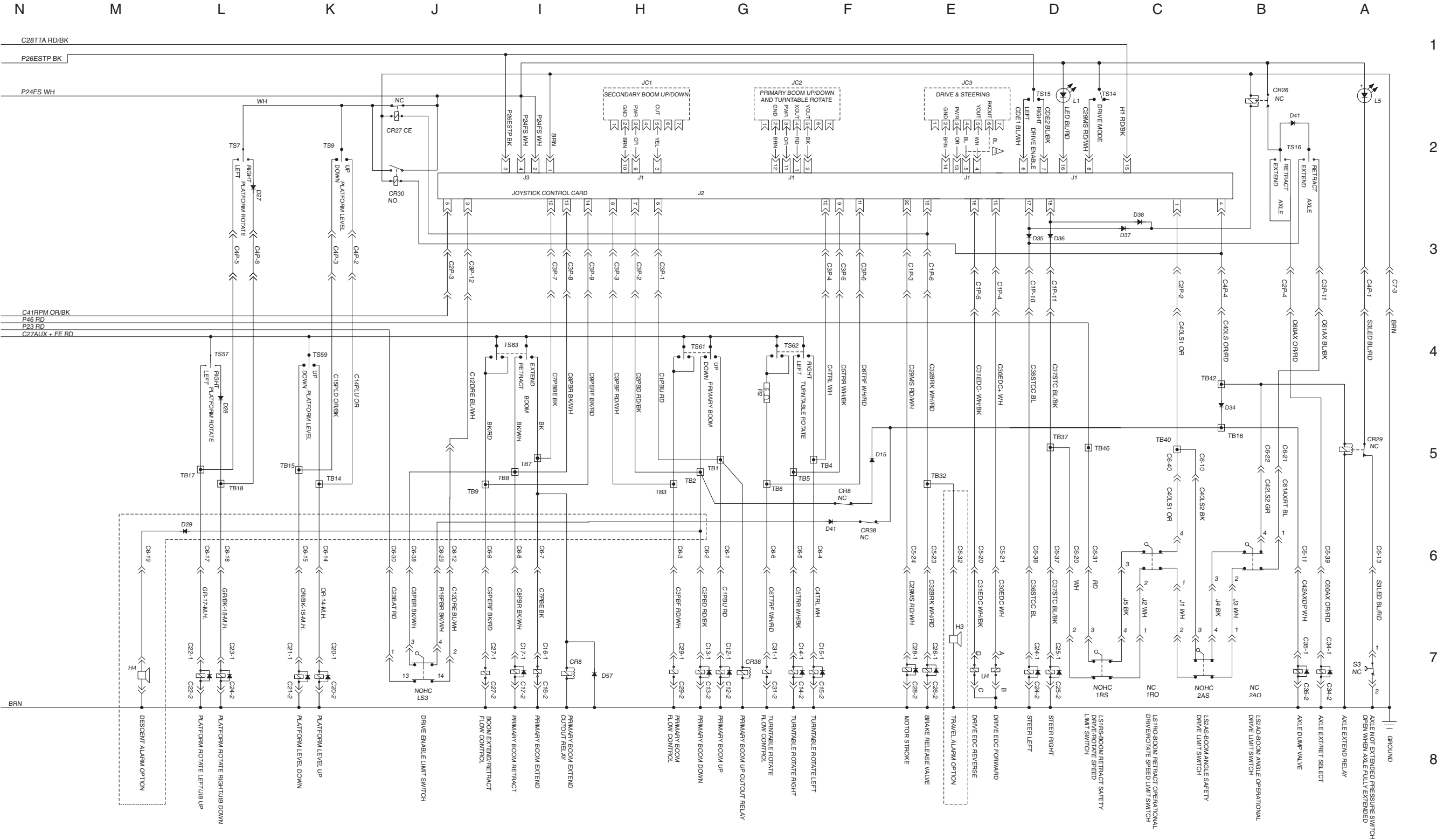


NOTES:
1. ALL LIMIT SWITCHES SHOWN WITH BOOM IN STOWED POSITION .
▷ ROCKER STEER OPTION ONLY.
▷ ADD D40 ONLY IF UNIT HAS L4 AND L48.

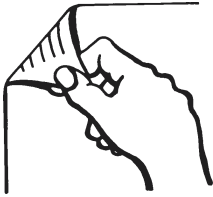
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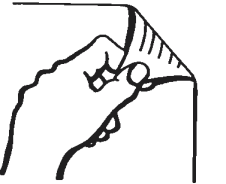
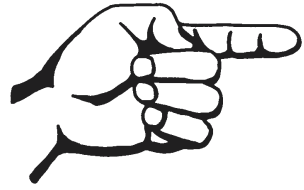
Electrical Schematic, S-80 with Dual Battery Option

Deutz F4L 913 Models (after serial number 3576)



Electrical Schematic, S-80 with Dual Battery Option
Deutz F4L 913 Models (after serial number 3576)

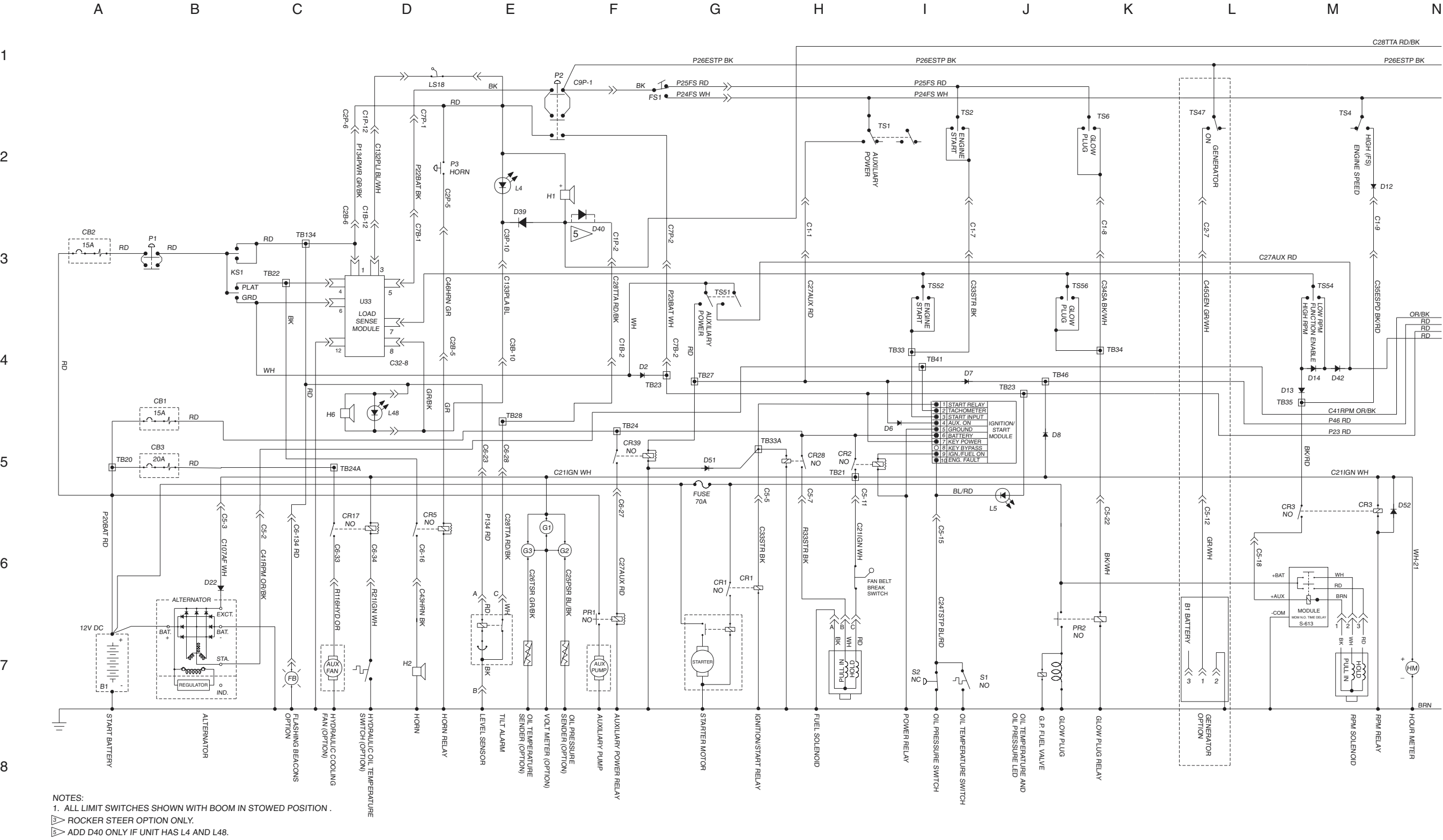




Electrical Schematic, S-80, CE Models

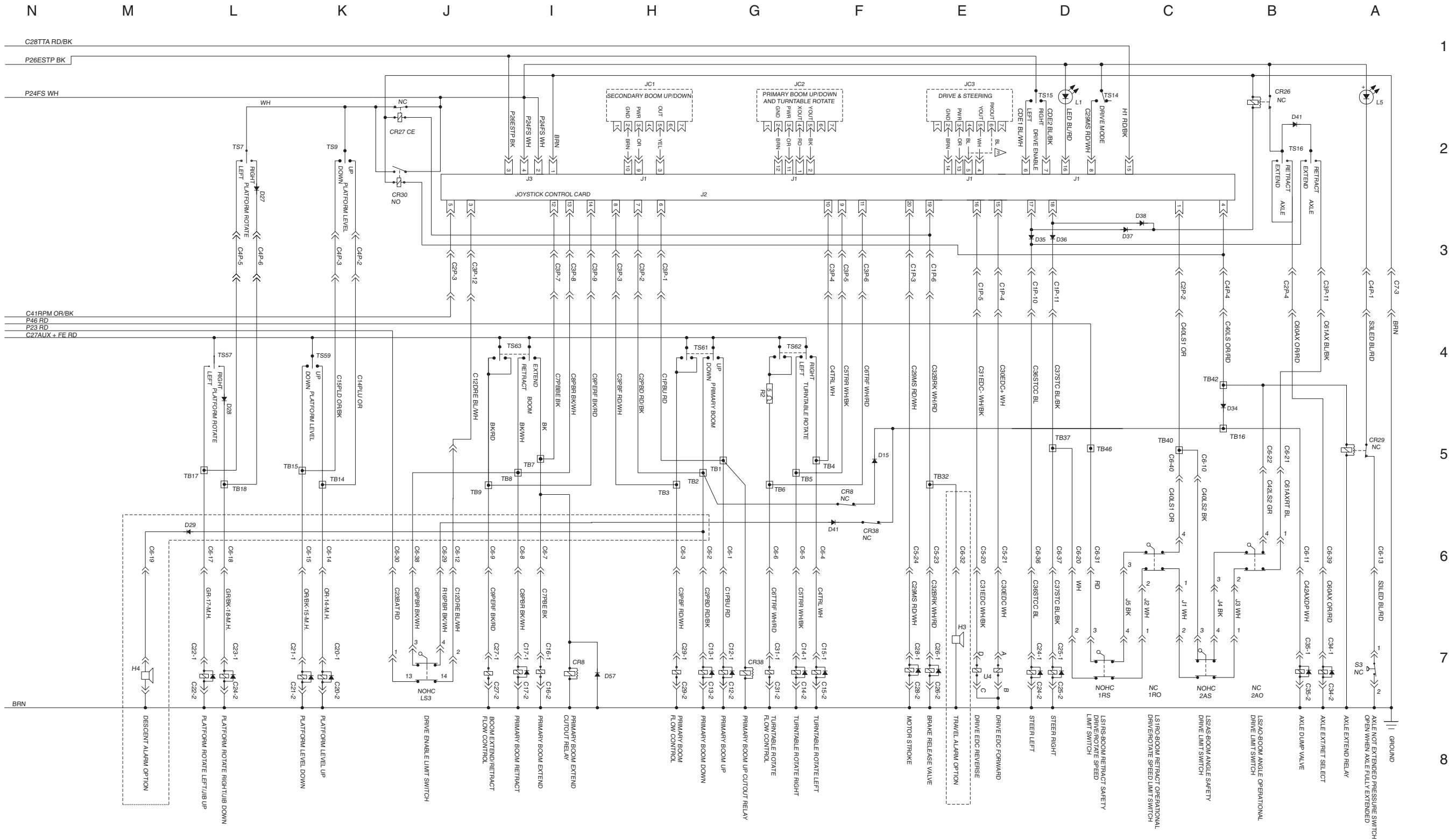
Deutz F4L 913 Models (after serial number 3576)

REV A

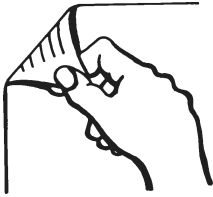


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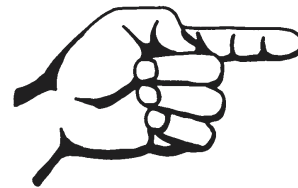
Electrical Schematic, S-80, CE Models
Deutz F4L 913 Models (after serial number 3576)



Electrical Schematic, S-80, CE Models
Deutz F4L 913 Models (after serial number 3576)



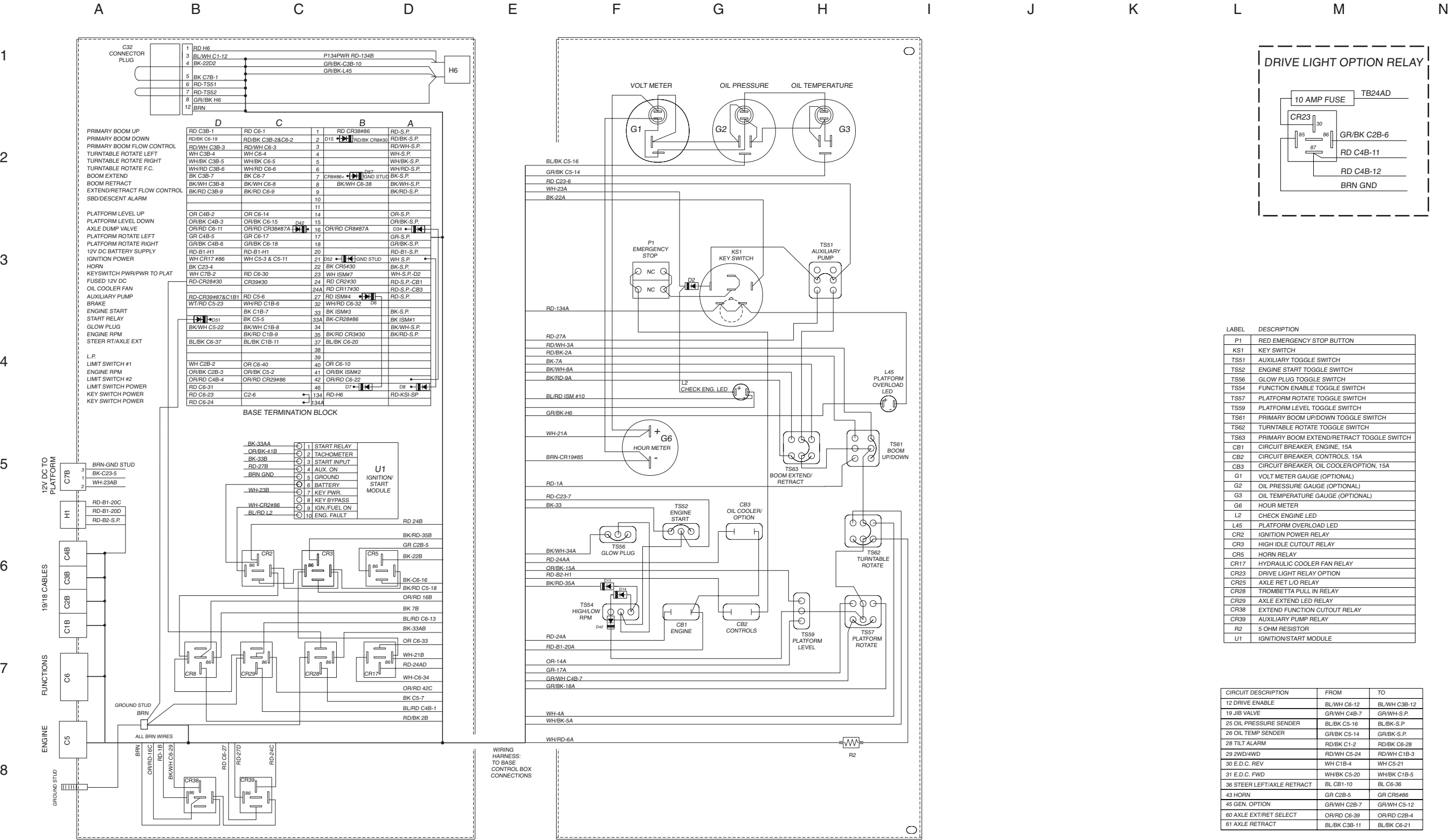
Ground Control Box Wiring Diagram, S-80
Deutz F4L 913 Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-80

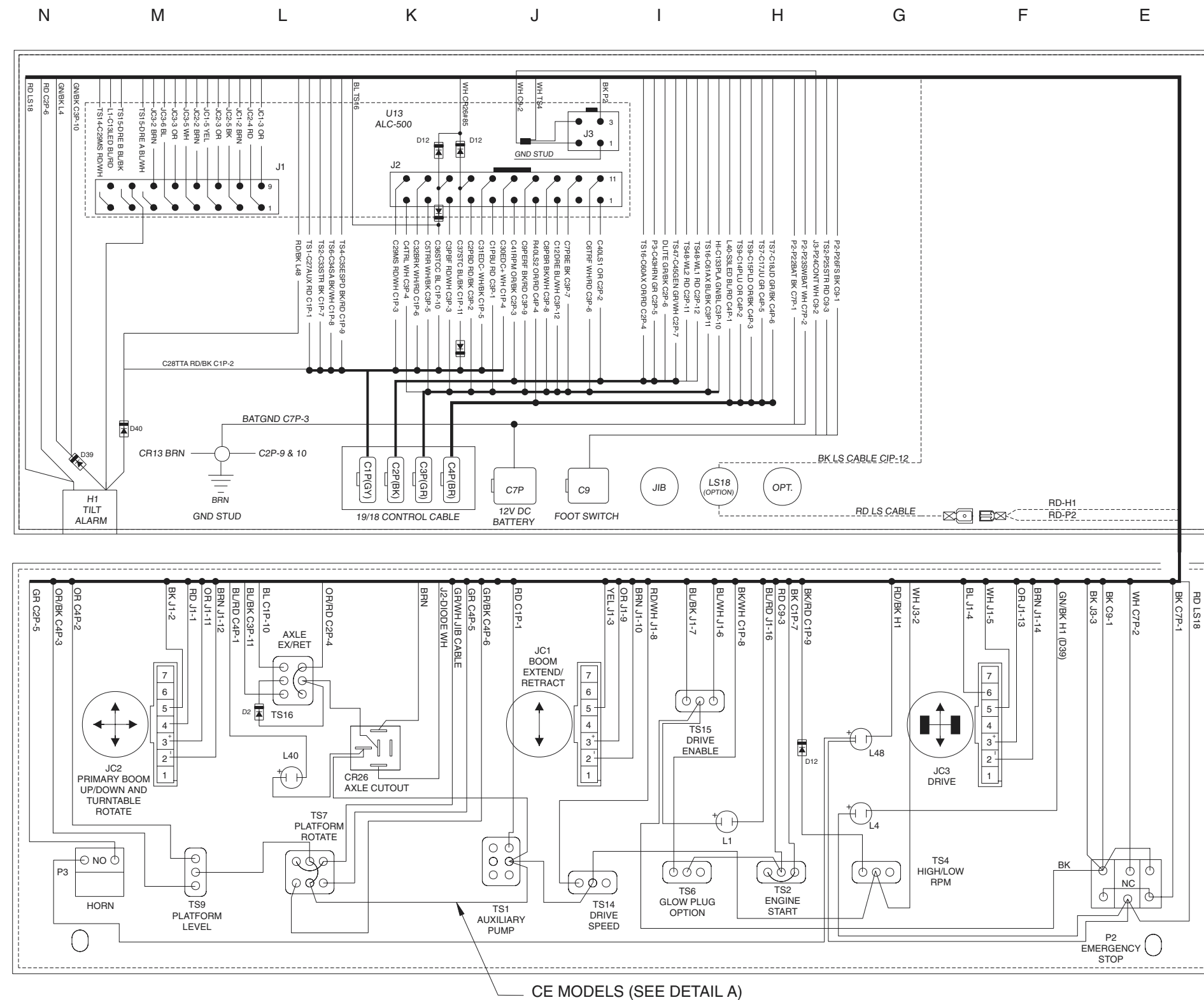
Deutz F4L 913 Models (after serial number 3576)

REV A1

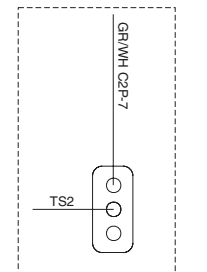
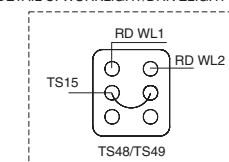
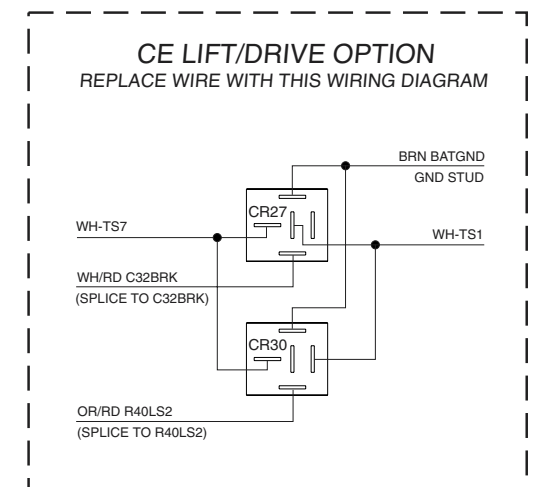


REV A

Platform Control Box Wiring Diagram, S-80 Deutz F4L 913 Models (after serial number 3576)

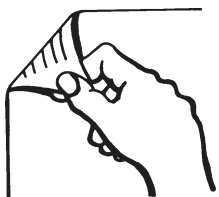


COMPONENT INDEX	
P2	EMERGENCY STOP BUTTON
P3	HORN SWITCH
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START SWITCH
TS4	HIGH RPM SWITCH
TS6	GLOW PLUG OPTION
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
TS49	DRIVE LIGHT TOGGLE SWITCH (OPTION)
LS18	PLATFORM OVERLOAD LIMIT SWITCH
L1	DRIVE ENABLE LED
L4	PLATFORM OVERLOAD LED
L40	AXLE EXTENDED LED
L48	TILT ALARM LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC2	BOOM PROPORTIONAL JOYSTICK: SECONDARY BOOM UP/DOWN
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U13	ALC500
CR26	AXLE CUTOUT RELAY
H1	TILT ALARM

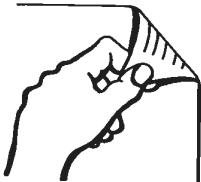
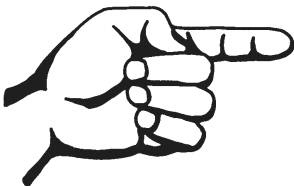


Platform Control Box Wiring Diagram, S-80

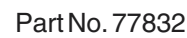
Deutz F4L 913 Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-80, CE Models
Deutz F4L 913 Models (after serial number 3576)

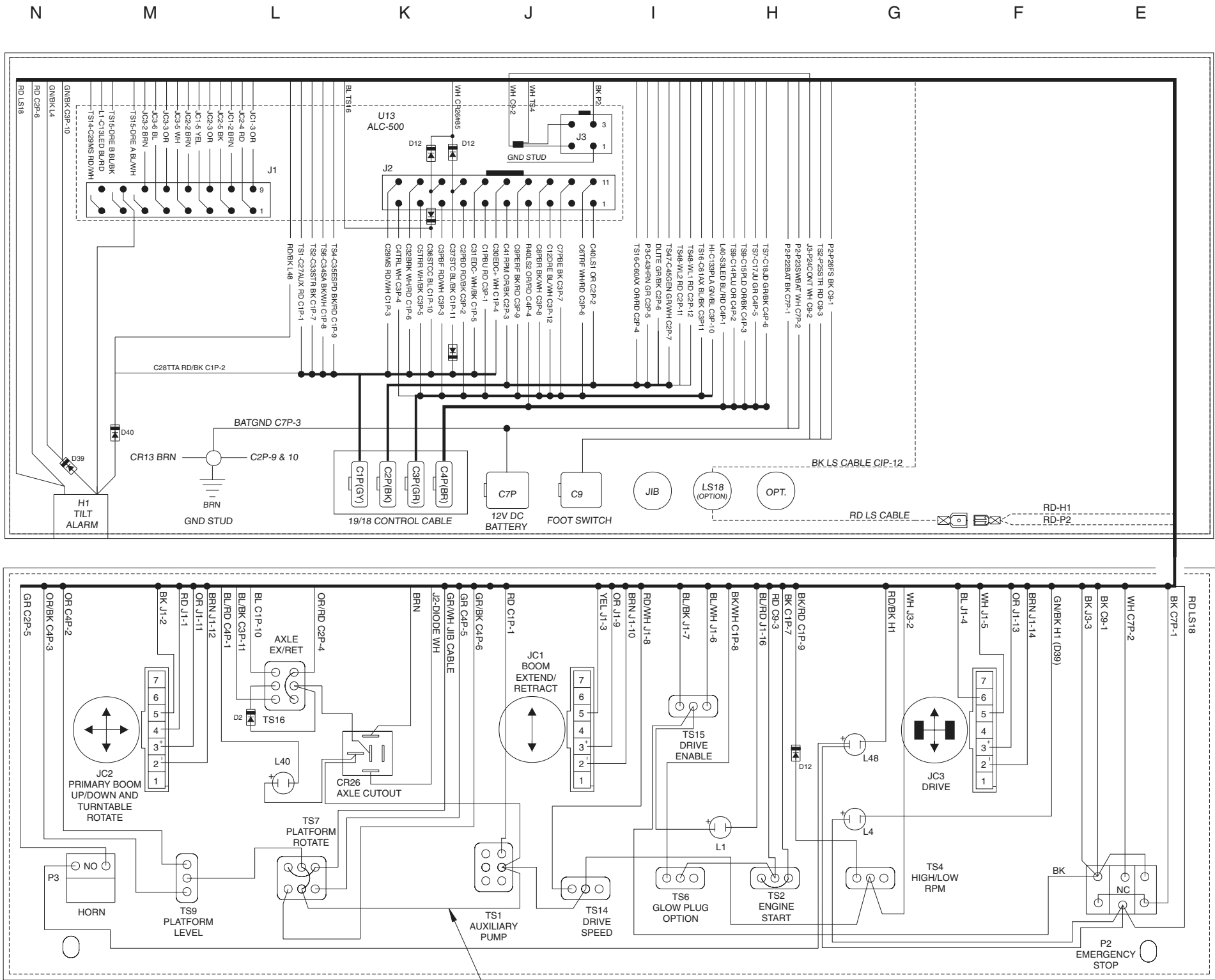


REV A1



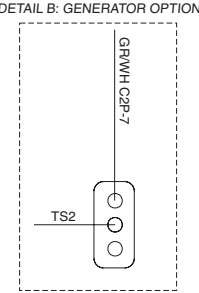
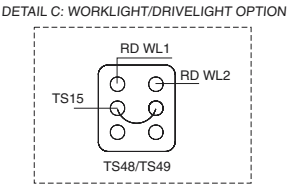
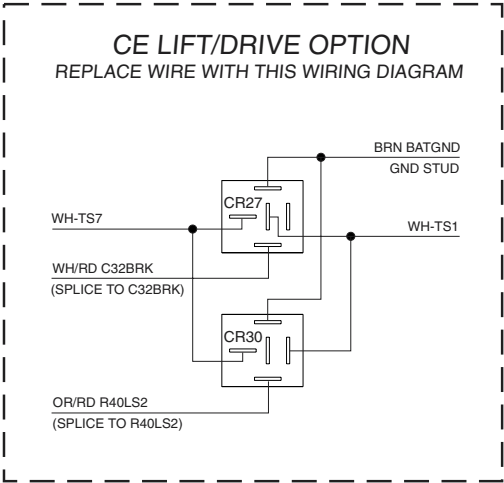
REV A

Platform Control Box Wiring Diagram, S-80, CE Models
Deutz F4L 913 Models (after serial number 3576)



CE MODELS (SEE DETAIL A)

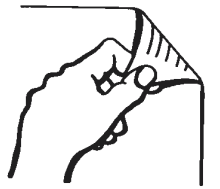
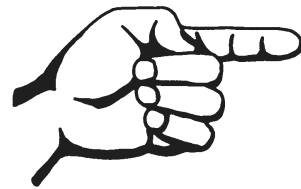
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JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC2	BOOM PROPORTIONAL JOYSTICK: SECONDARY BOOM UP/DOWN
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNABLE ROTATE
U13	ALC500
CR26	AXLE CUTOFF RELAY
H1	TILT ALARM



Platform Control Box Wiring Diagram, S-80, CE Models
Deutz F4L 913 Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-80
GM 3.0L Models (before serial number 3577)



REV A

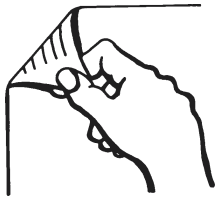


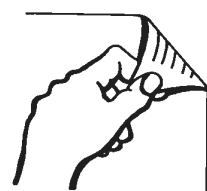
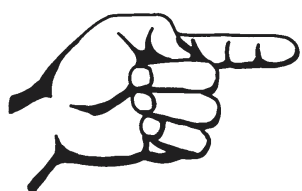
Platform Control Box Wiring Diagram, S-80

GM 3.0L Models (before serial number 3577)

Platform Control Box Wiring Diagram, S-80

GM 3.0L Models (before serial number 3577)

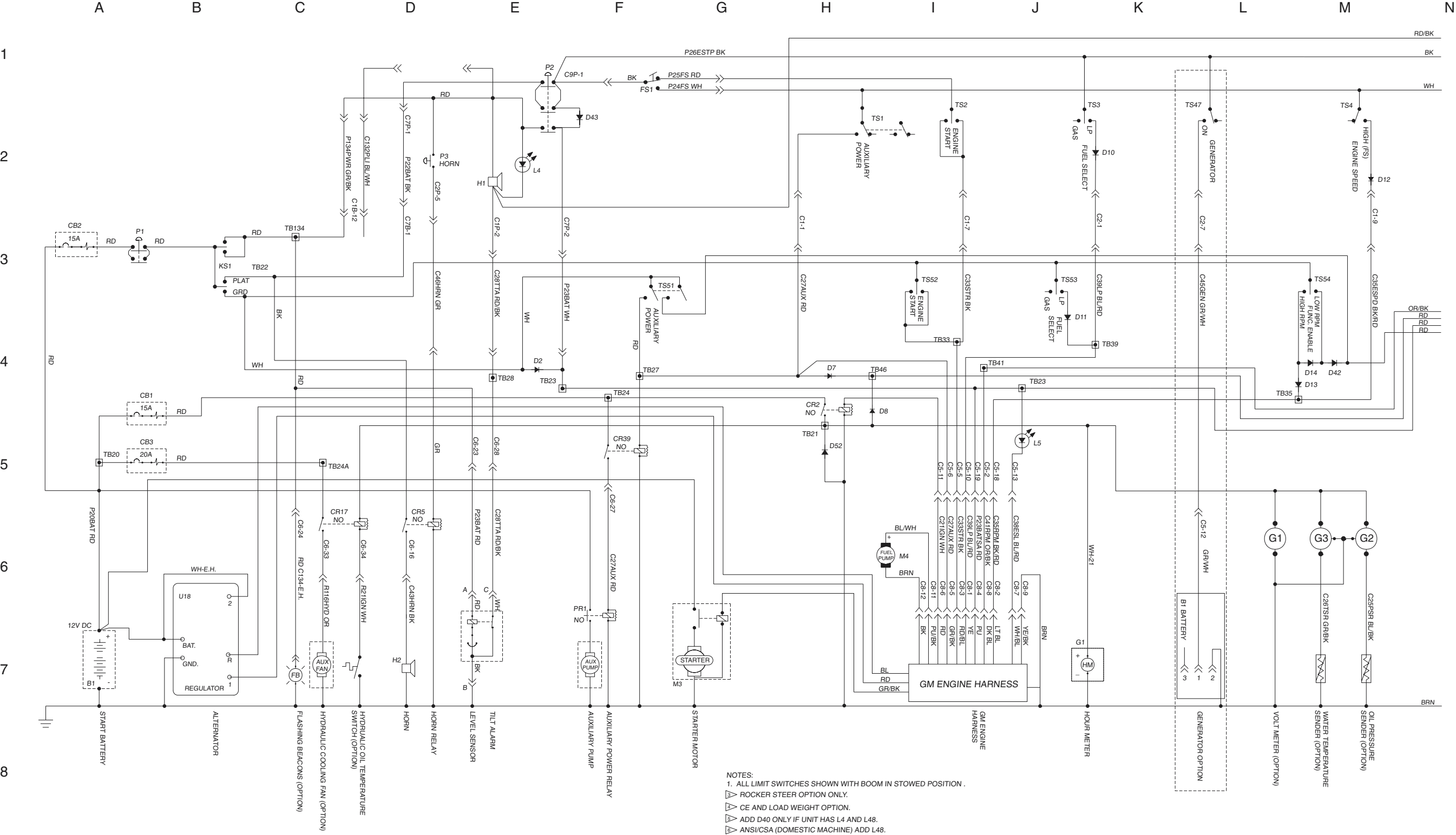




Electrical Schematic, S-80

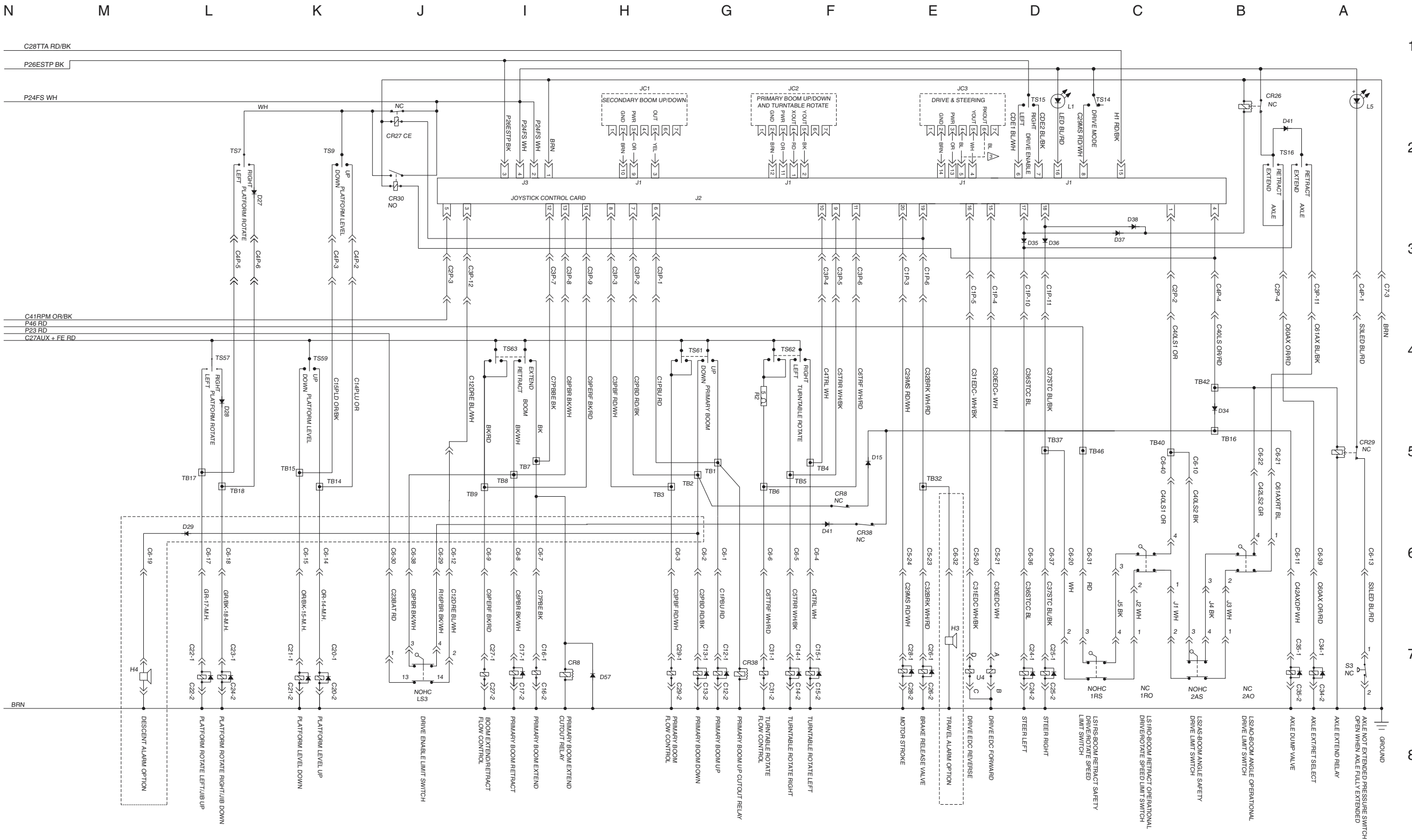
GM 3.0L Models (after serial number 3576)

REV A



REV A

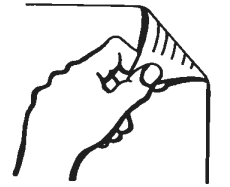
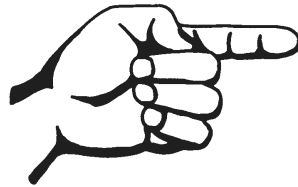
Electrical Schematic, S-80
GM 3.0L Models (after serial number 3576)



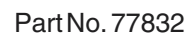
Electrical Schematic, S-80
GM 3.0L Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-80
GM 3.0L Models (after serial number 3576)

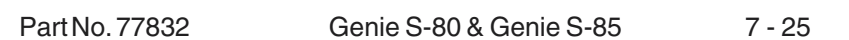


REV A1



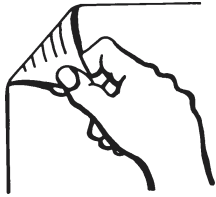
Platform Control Box Wiring Diagram, S-80

GM 3.0L Models (after serial number 3576)

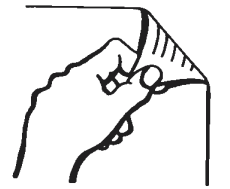
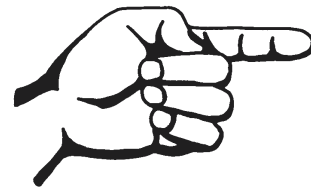


Platform Control Box Wiring Diagram, S-80

GM 3.0L Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-80
Perkins 704-30 Models (before serial number 3577)



REV A



Platform Control Box Wiring Diagram, S-80 Perkins 704-30 Models (before serial number 3577)

The diagram illustrates the electrical wiring for a lift system, organized into two main sections: the top section for the 19/18 control cable and the bottom section for the 12V DC battery and foot switch.

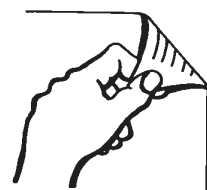
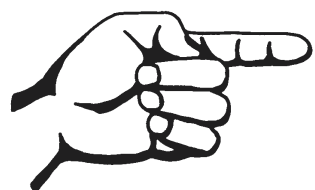
Top Section (19/18 Control Cable):

- Wiring Connections:** Shows connections for various components including J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16, J17, J18, J19, J20, J21, J22, J23, J24, J25, J26, J27, J28, J29, J30, J31, J32, J33, J34, J35, J36, J37, J38, J39, J40, J41, J42, J43, J44, J45, J46, J47, J48, J49, J50, J51, J52, J53, J54, J55, J56, J57, J58, J59, J60, J61, J62, J63, J64, J65, J66, J67, J68, J69, J70, J71, J72, J73, J74, J75, J76, J77, J78, J79, J80, J81, J82, J83, J84, J85, J86, J87, J88, J89, J90, J91, J92, J93, J94, J95, J96, J97, J98, J99, J100, J101, J102, J103, J104, J105, J106, J107, J108, J109, J110, J111, J112, J113, J114, J115, J116, J117, J118, J119, J120, J121, J122, J123, J124, J125, J126, J127, J128, J129, J130, J131, J132, J133, J134, J135, J136, J137, J138, J139, J140, J141, J142, J143, J144, J145, J146, J147, J148, J149, J150, J151, J152, J153, J154, J155, J156, J157, J158, J159, J160, J161, J162, J163, J164, J165, J166, J167, J168, J169, J170, J171, J172, J173, J174, J175, J176, J177, J178, J179, J180, J181, J182, J183, J184, J185, J186, J187, J188, J189, J190, J191, J192, J193, J194, J195, J196, J197, J198, J199, J200, J201, J202, J203, J204, J205, J206, J207, J208, J209, J210, J211, J212, J213, J214, J215, J216, J217, J218, J219, J220, J221, J222, J223, J224, J225, J226, J227, J228, J229, J230, J231, J232, J233, J234, J235, J236, J237, J238, J239, J240, J241, J242, J243, J244, J245, J246, J247, J248, J249, J250, J251, J252, J253, J254, J255, J256, J257, J258, J259, J260, J261, J262, J263, J264, J265, J266, J267, J268, J269, J270, J271, J272, J273, J274, J275, J276, J277, J278, J279, J280, J281, J282, J283, J284, J285, J286, J287, J288, J289, J290, J291, J292, J293, J294, J295, J296, J297, J298, J299, J300, J301, J302, J303, J304, J305, J306, J307, J308, J309, J310, J311, J312, J313, J314, J315, J316, J317, J318, J319, J320, J321, J322, J323, J324, J325, J326, J327, J328, J329, J330, J331, J332, J333, J334, J335, J336, J337, J338, J339, J340, J341, J342, J343, J344, J345, J346, J347, J348, J349, J350, J351, J352, J353, J354, J355, J356, J357, J358, J359, J360, J361, J362, J363, J364, J365, J366, J367, J368, J369, J370, J371, J372, J373, J374, J375, J376, J377, J378, J379, J380, J381, J382, J383, J384, J385, J386, J387, J388, J389, J390, J391, J392, J393, J394, J395, J396, J397, J398, J399, J400, J401, J402, J403, J404, J405, J406, J407, J408, J409, J410, J411, J412, J413, J414, J415, J416, J417, J418, J419, J420, J421, J422, J423, J424, J425, J426, J427, J428, J429, J430, J431, J432, J433, J434, J435, J436, J437, J438, J439, J440, J441, J442, J443, J444, J445, J446, J447, J448, J449, J450, J451, J452, J453, J454, J455, J456, J457, J458, J459, J460, J461, J462, J463, J464, J465, J466, J467, J468, J469, J470, J471, J472, J473, J474, J475, J476, J477, J478, J479, J480, J481, J482, J483, J484, J485, J486, J487, J488, J489, J490, J491, J492, J493, J494, J495, J496, J497, J498, J499, J500, J501, J502, J503, J504, J505, J506, J507, J508, J509, J510, J511, J512, J513, J514, J515, J516, J517, J518, J519, J520, J521, J522, J523, J524, J525, J526, J527, J528, J529, J530, J531, J532, J533, J534, J535, J536, J537, J538, J539, J540, J541, J542, J543, J544, J545, J546, J547, J548, J549, J550, J551, J552, J553, J554, J555, J556, J557, J558, J559, J560, J561, J562, J563, J564, J565, J566, J567, J568, J569, J570, J571, J572, J573, J574, J575, J576, J577, J578, J579, J580, J581, J582, J583, J584, J585, J586, J587, J588, J589, J590, J591, J592, J593, J594, J595, J596, J597, J598, J599, J600, J601, J602, J603, J604, J605, J606, J607, J608, J609, J610, J611, J612, J613, J614, J615, J616, J617, J618, J619, J620, J621, J622, J623, J624, J625, J626, J627, J628, J629, J630, J631, J632, J633, J634, J635, J636, J637, J638, J639, J640, J641, J642, J643, J644, J645, J646, J647, J648, J649, J650, J651, J652, J653, J654, J655, J656, J657, J658, J659, J660, J661, J662, J663, J664, J665, J666, J667, J668, J669, J670, J671, J672, J673, J674, J675, J676, J677, J678, J679, J680, J681, J682, J683, J684, J685, J686, J687, J688, J689, J690, J691, J692, J693, J694, J695, J696, J697, J698, J699, J700, J701, J702, J703, J704, J705, J706, J707, J708, J709, J710, J711, J712, J713, J714, J715, J716, J717, J718, J719, J720, J721, J722, J723, J724, J725, J726, J727, J728, J729, J730, J731, J732, J733, J734, J735, J736, J737, J738, J739, J740, J741, J742, J743, J744, J745, J746, J747, J748, J749, J750, J751, J752, J753, J754, J755, J756, J757, J758, J759, J760, J761, J762, J763, J764, J765, J766, J767, J768, J769, J770, J771, J772, J773, J774, J775, J776, J777, J778, J779, J780, J781, J782, J783, J784, J785, J786, J787, J788, J789, J790, J791, J792, J793, J794, J795, J796, J797, J798, J799, J800, J801, J802, J803, J804, J805, J806,

Platform Control Box Wiring Diagram, S-80

Perkins 704-30 Models (before serial number 3577)

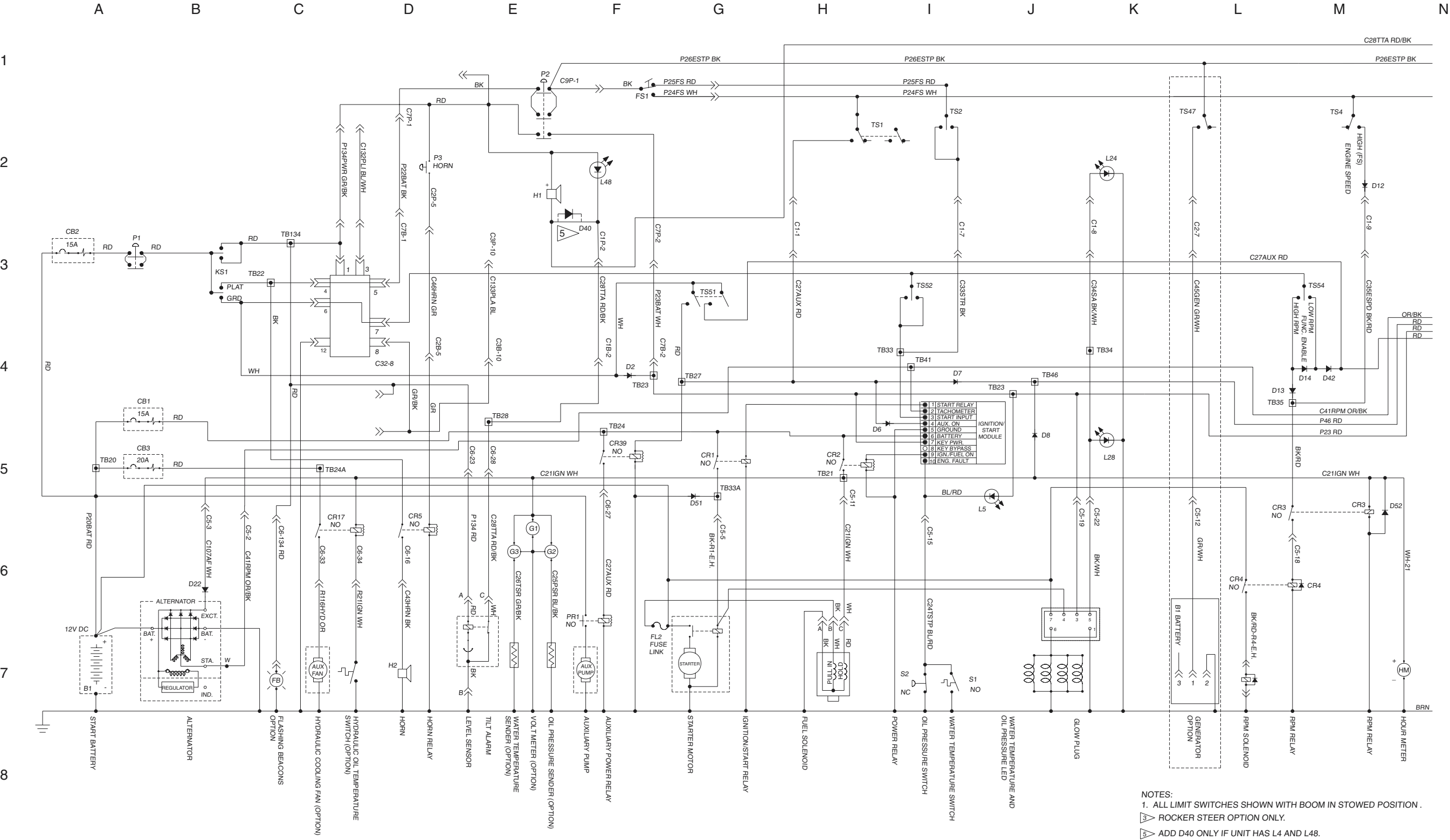




Electrical Schematic, S-80

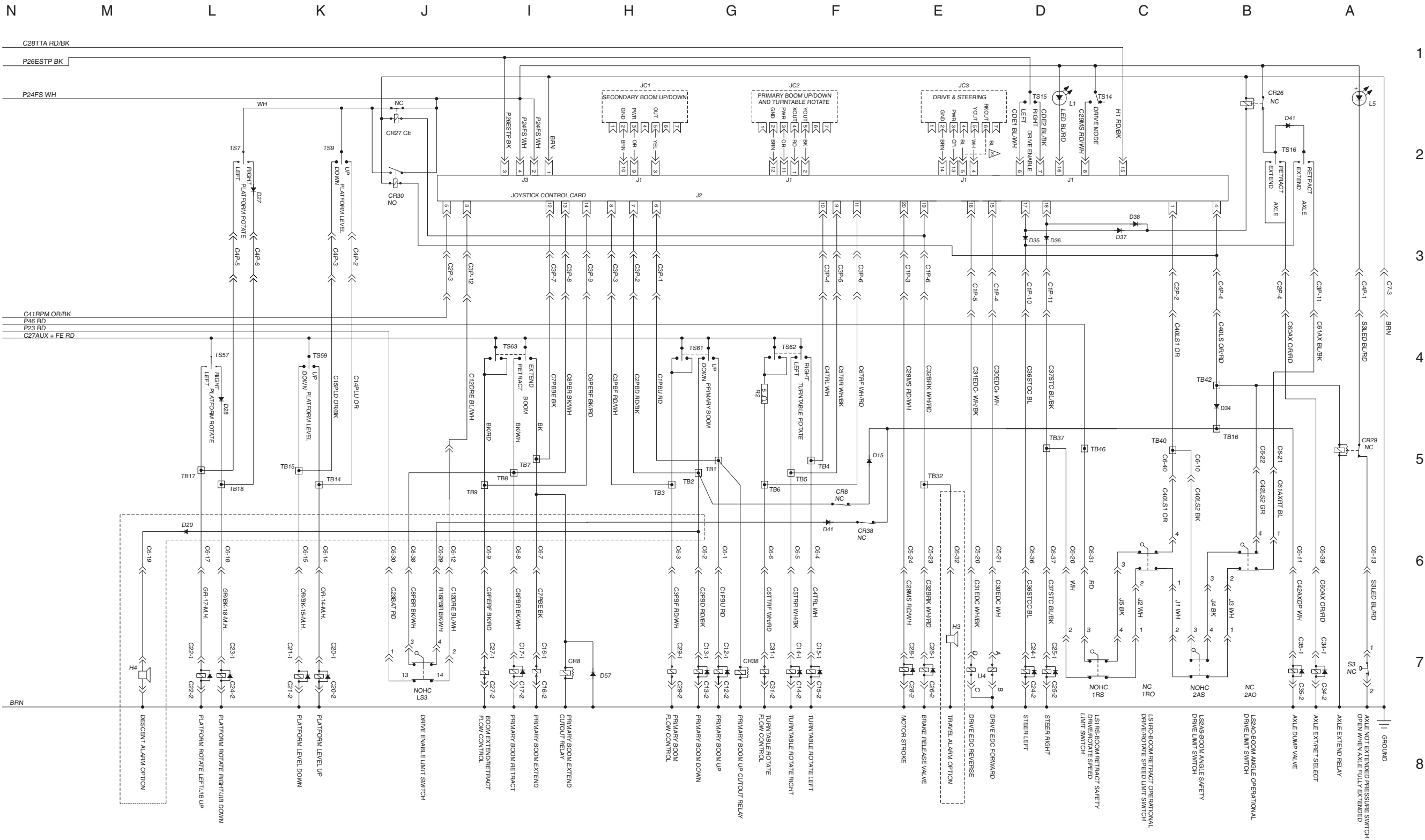
Perkins 704-30 Models (after serial number 3576)

REV A



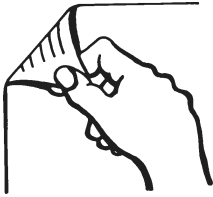
REV A

Electrical Schematic, S-80
Perkins 704-30 Models (after serial number 3576)

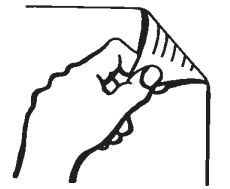
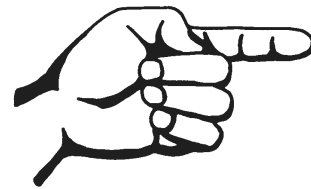


Electrical Schematic, S-80

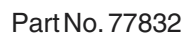
Perkins 704-30 Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-80
Perkins 704-30 Models (after serial number 3576)

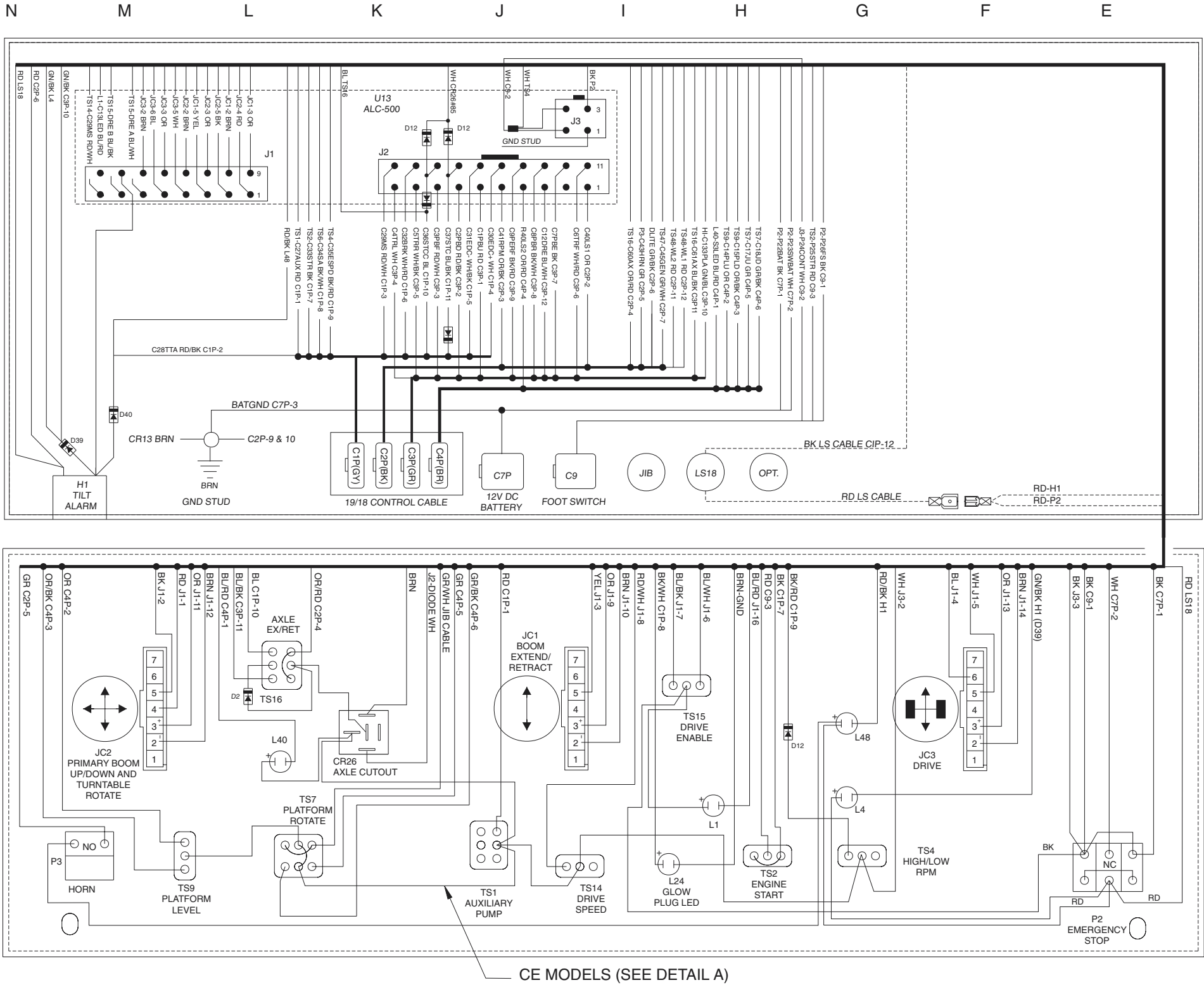


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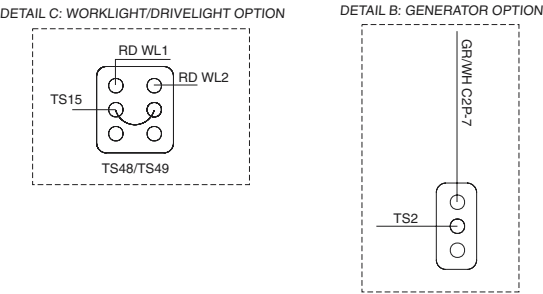
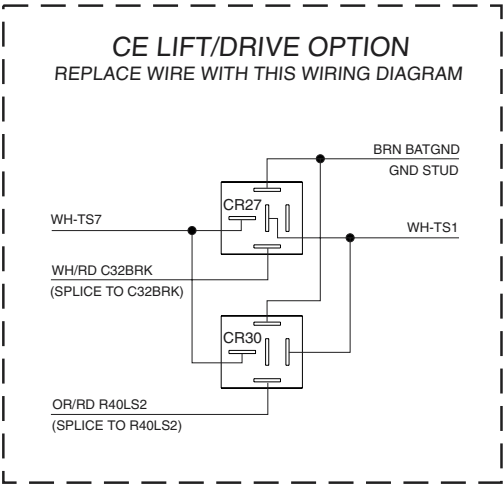


REV A

Platform Control Box Wiring Diagram, S-80
Perkins 704-30 Models (after serial number 3576)

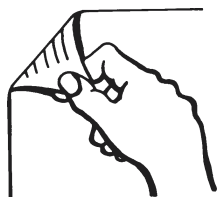


COMPONENT INDEX	
P2	EMERGENCY STOP BUTTON
P3	HORN SWITCH
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START SWITCH
TS4	HIGH RPM SWITCH
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
TS49	DRIVE LIGHT TOGGLE SWITCH (OPTION)
LS18	PLATFORM OVERLOAD LIMIT SWITCH
L1	DRIVE ENABLE LED
L4	PLATFORM OVERLOAD LED
L24	GLOW PLUG LED
L48	TILT ALARM LED
L40	AXLE EXTENDED LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC2	BOOM PROPORTIONAL JOYSTICK: SECONDARY BOOM UP/DOWN
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNTABLE ROTATE
U13	ALC500
H1	TILT ALARM

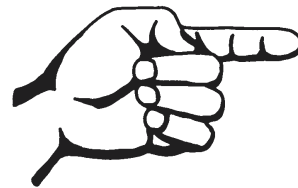


Platform Control Box Wiring Diagram, S-80

Perkins 704-30 Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-85
Deutz F4L 913 Models (before serial number 3577)



REV A



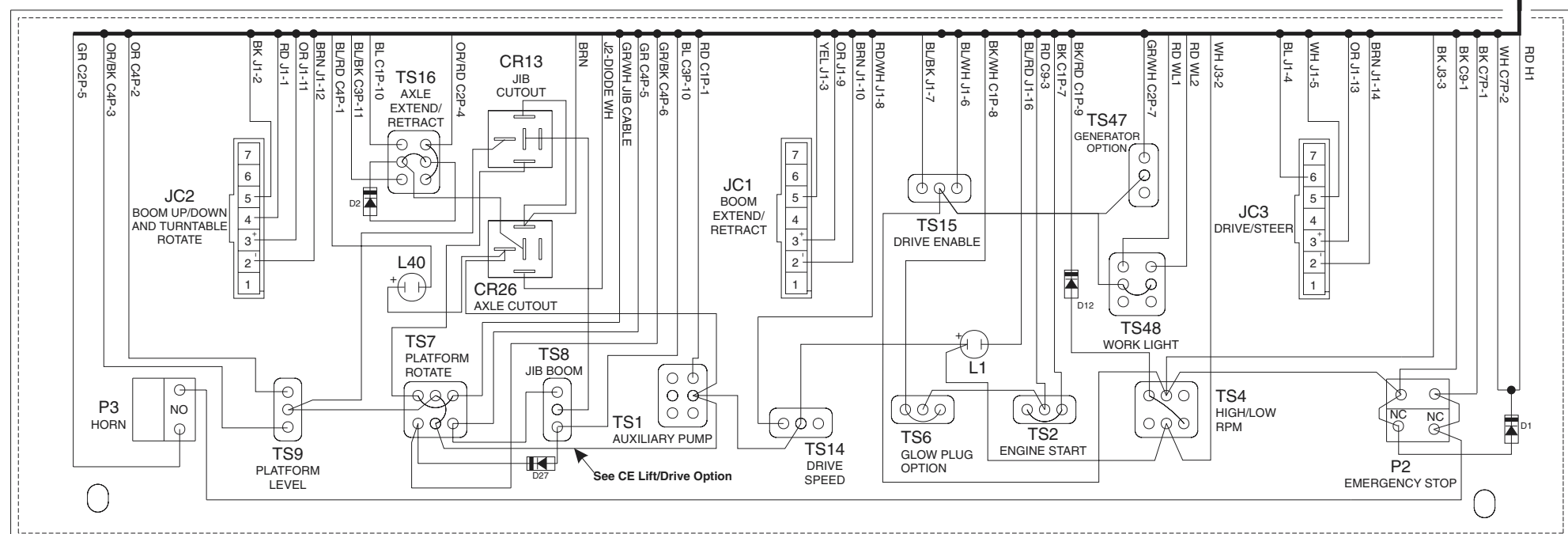
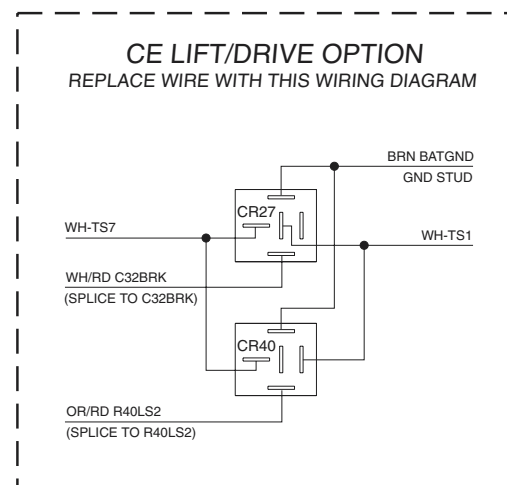
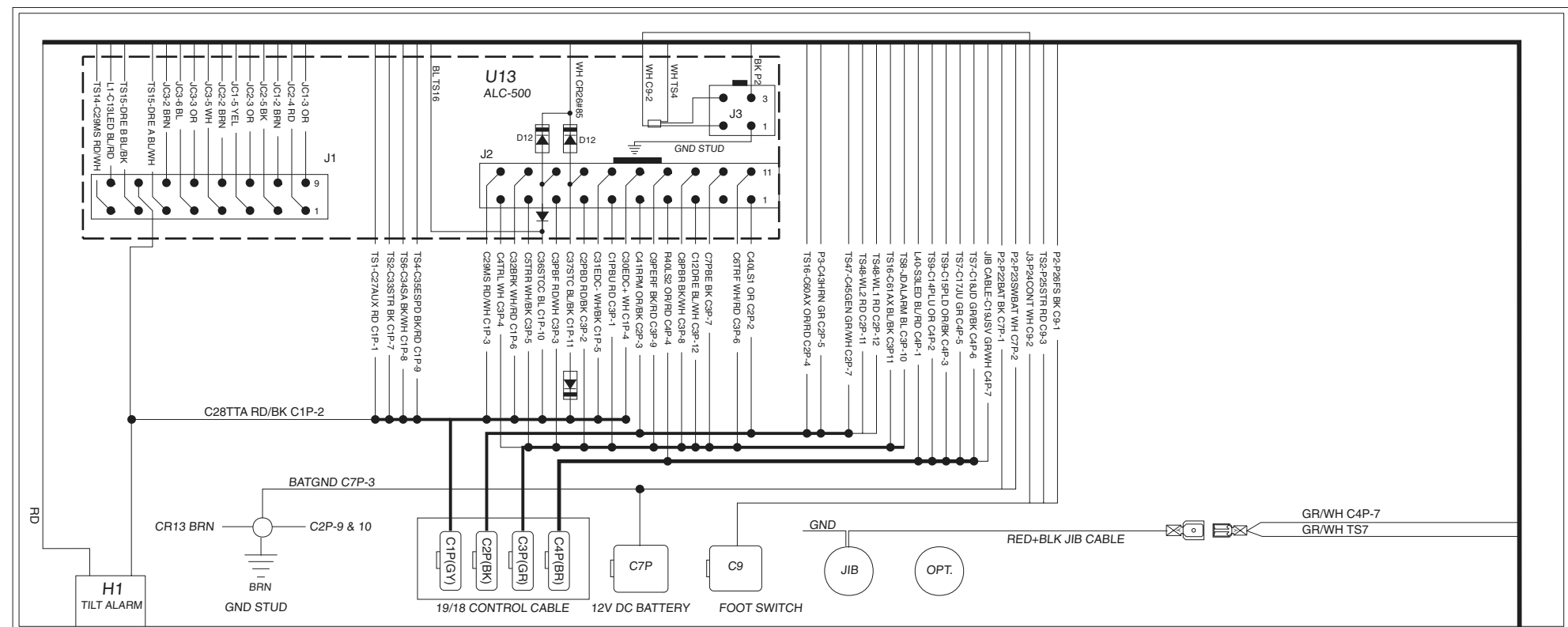
REV A

Platform Control Box Wiring Diagram, S-85 Deutz F4L 913 Models (before serial number 3577)

N	M	L	K	J	I	H	G	F	E	D	C	B	A
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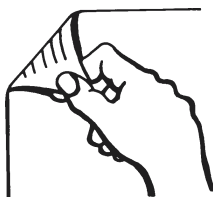
COMPONENT INDEX

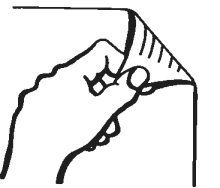
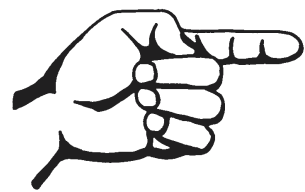
P2	EMERGENCY STOP BUTTON
P3	HORN SWITCH
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START SWITCH
TS6	GLOW PLUG OPTION
TS4	HIGH RPM SWITCH
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS8	JIB BOOM UP/DOWN TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
L1	DRIVE ENABLE LED
L40	AXLE EXTENDED LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM EXTEND/RETRACT
JC2	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNTABLE ROTATE
CR13	JIB BOOM CUTOFF RELAY (S-85 MODELS)
U13	ALC500
H1	TILT ALARM



Platform Control Box Wiring Diagram, S-85

Deutz F4L 913 Models (before serial number 3577)

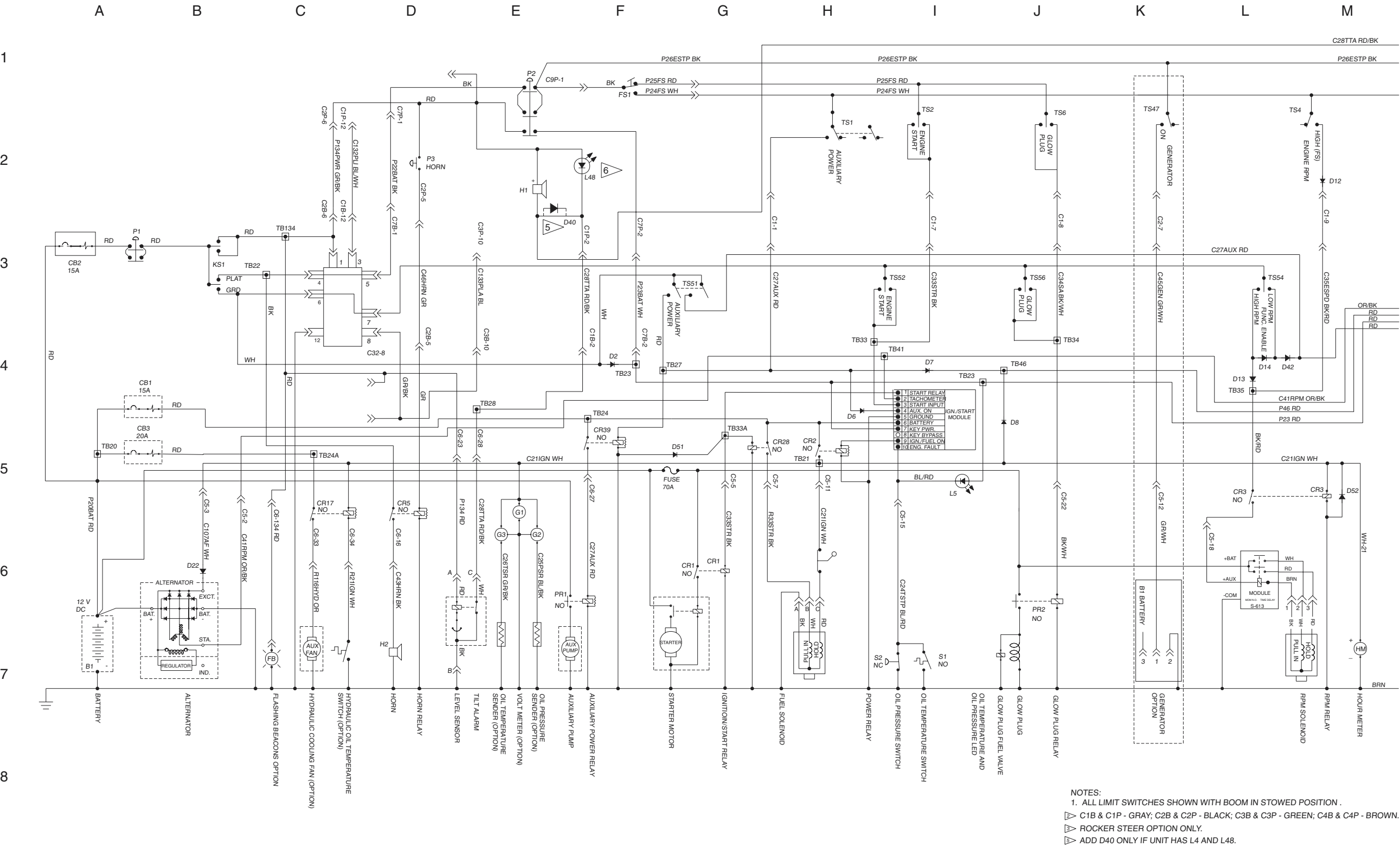




Electrical Schematic, S-85

Deutz F4L 913 Models (after serial number 3576)

REV A



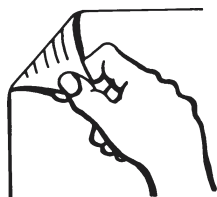
Electrical Schematic, S-85

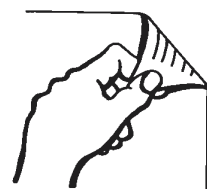
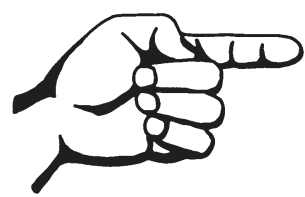
Deutz F4L 913 Models (after serial number 3576)



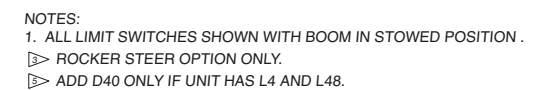
Electrical Schematic, S-85

Deutz F4L 913 Models (after serial number 3576)



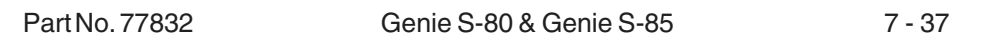


REV A1

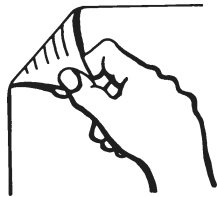


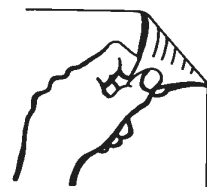
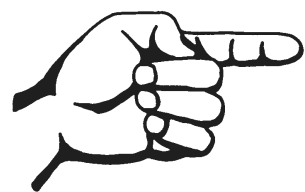
Electrical Schematic, S-85 with Dual Battery Option

Deutz F4L 913 Models (after serial number 3576)



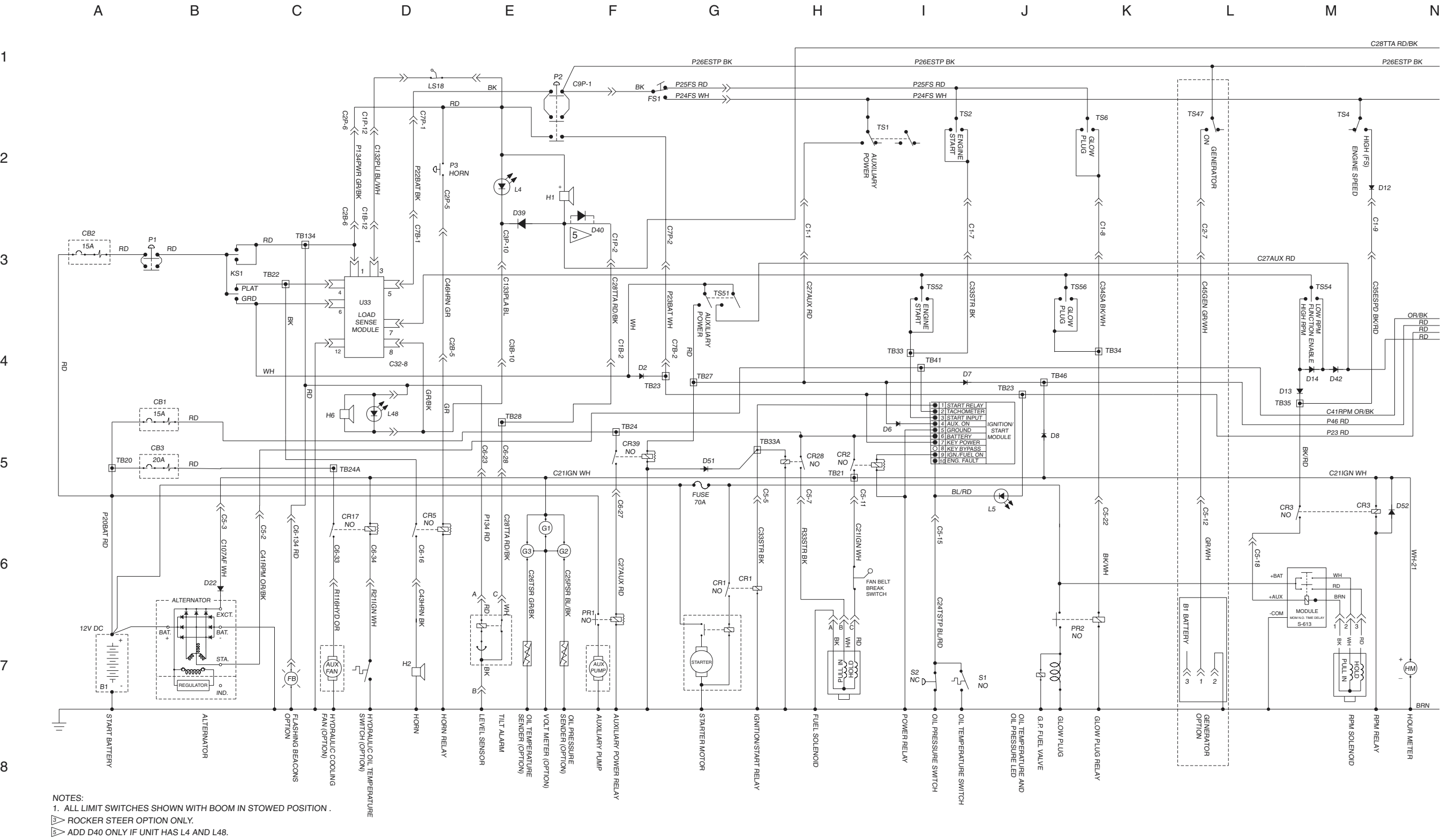
Electrical Schematic, S-85 with Dual Battery Option
Deutz F4L 913 Models (after serial number 3576)





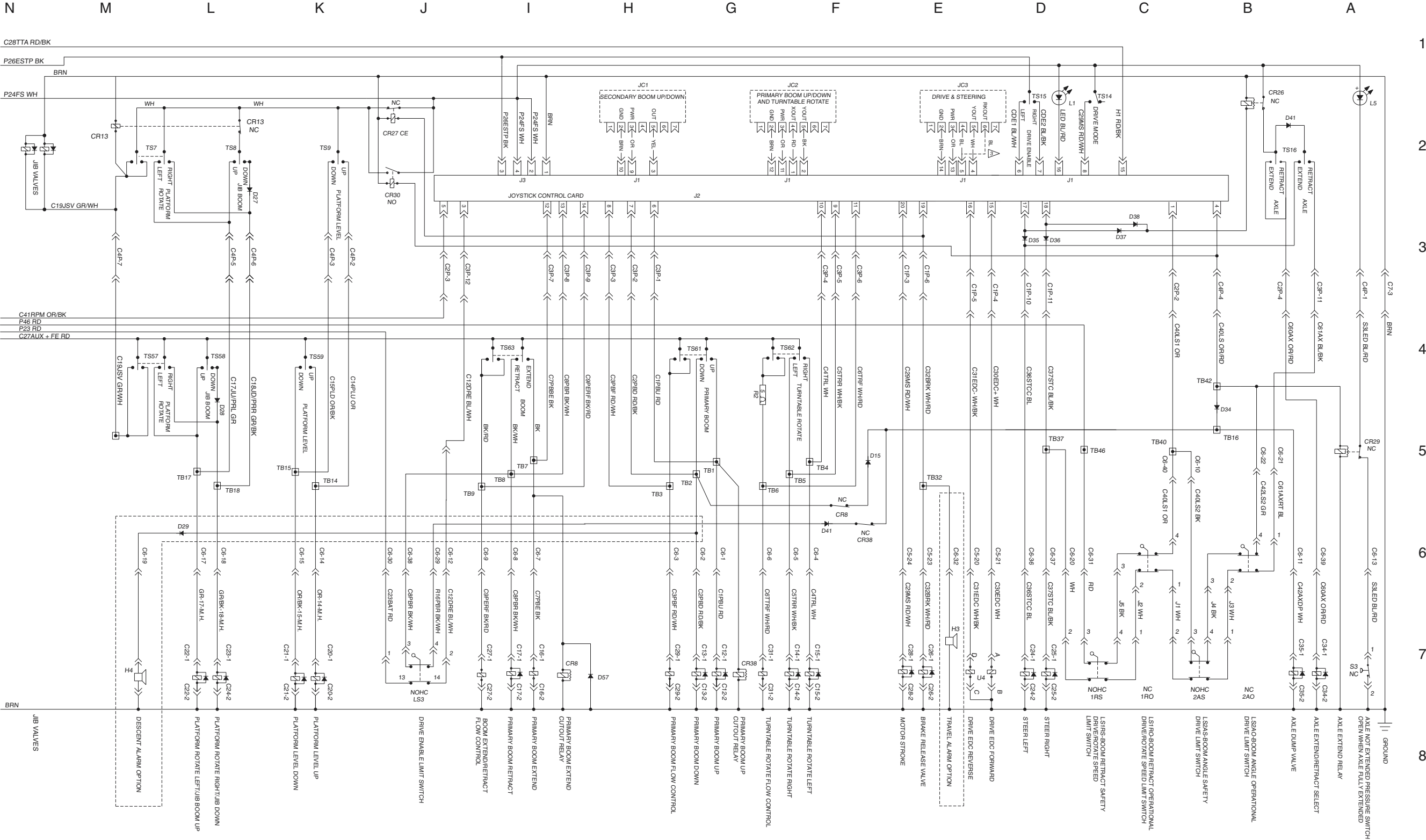
Electrical Schematic, S-85, CE Models
Deutz F4L 913 Models (after serial number 3576)

REV A

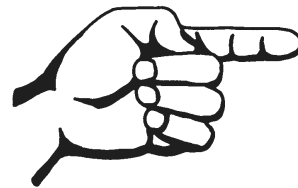


REV A

Electrical Schematic, S-85, CE Models
Deutz F4L 913 Models (after serial number 3576)



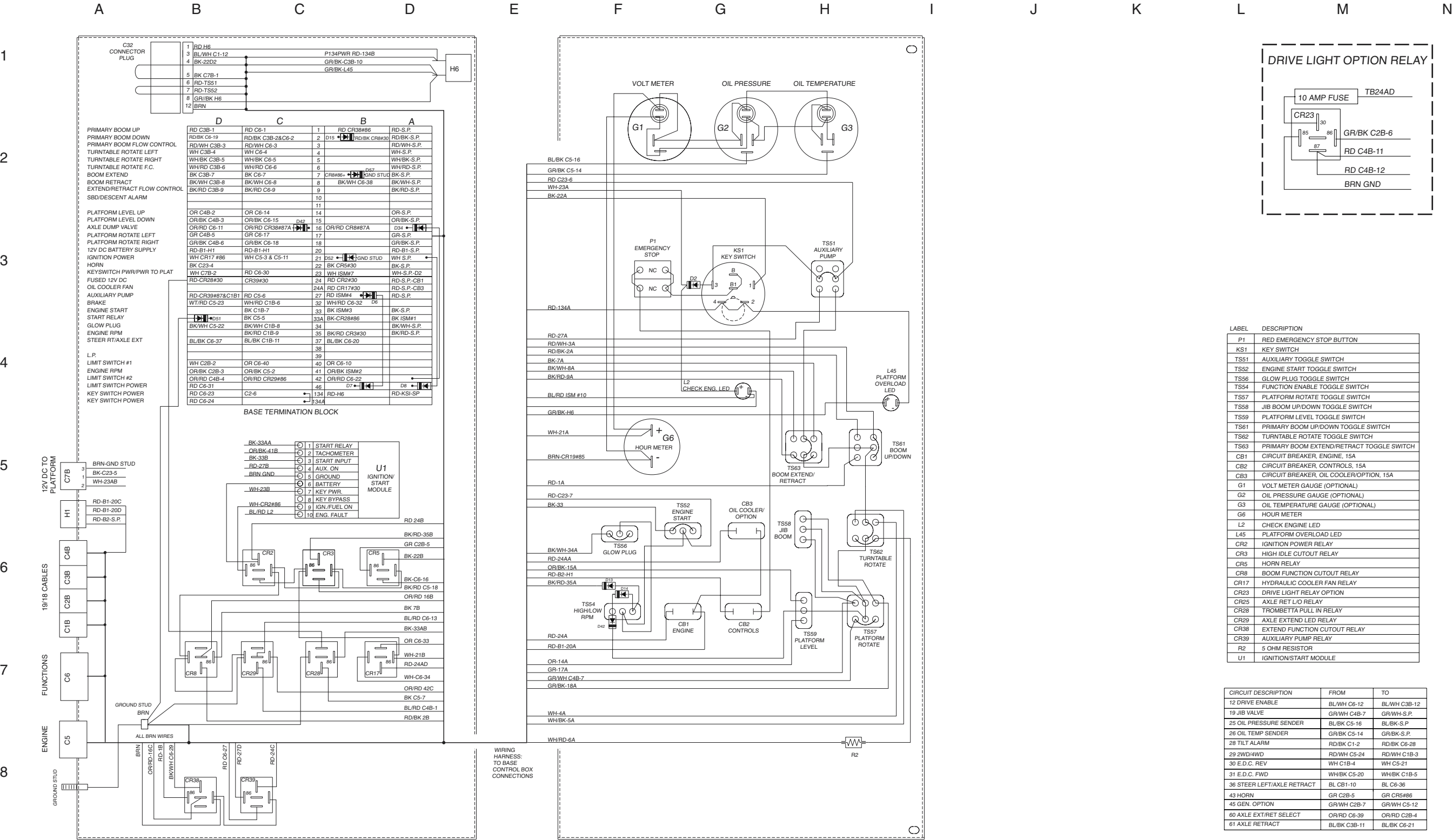
Ground Control Box Wiring Diagram, S-85
Deutz F4L 913 Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-85

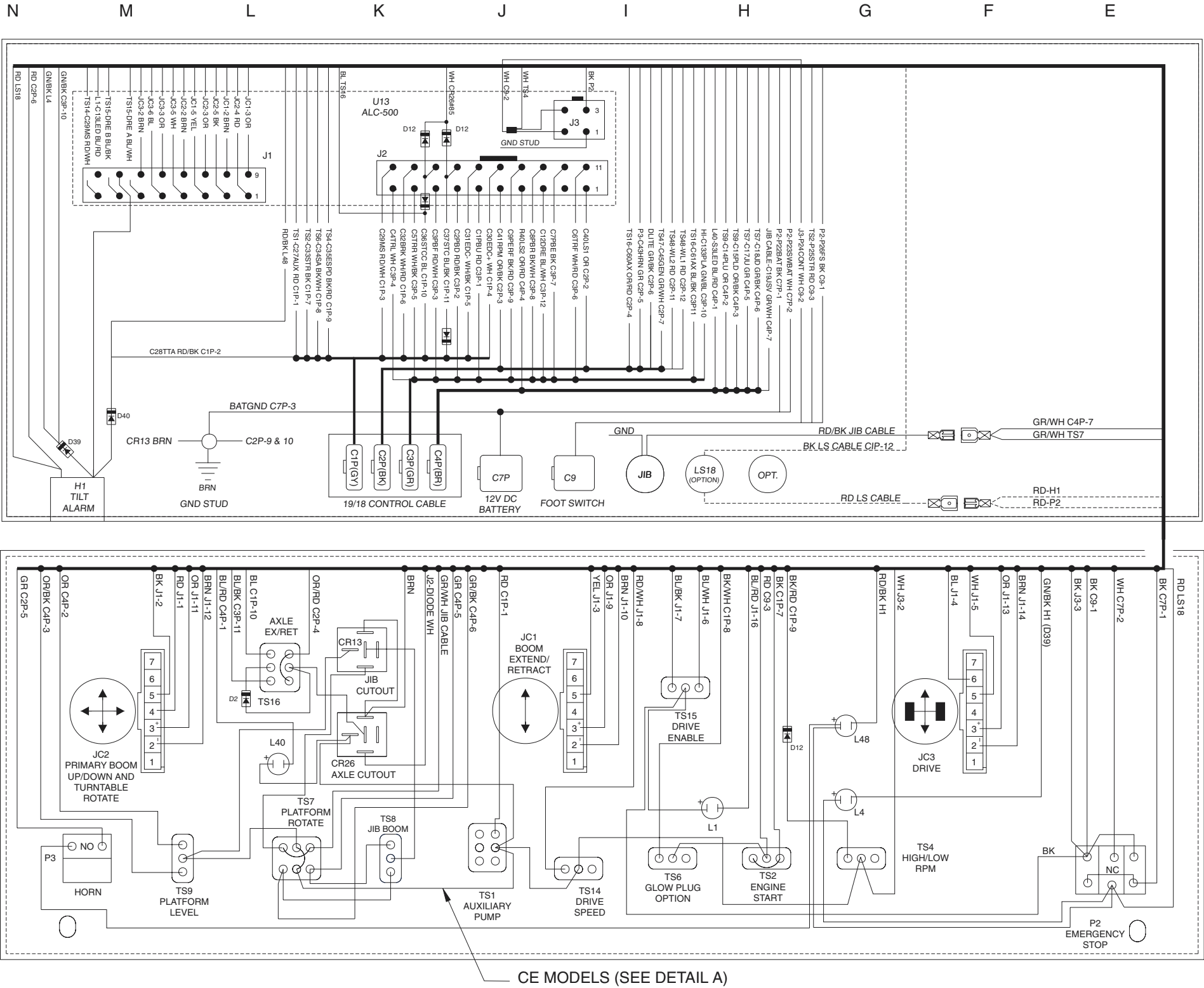
Deutz F4L 913 Models (after serial number 3576)

REV A1

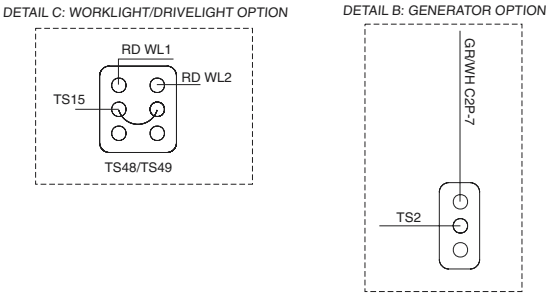
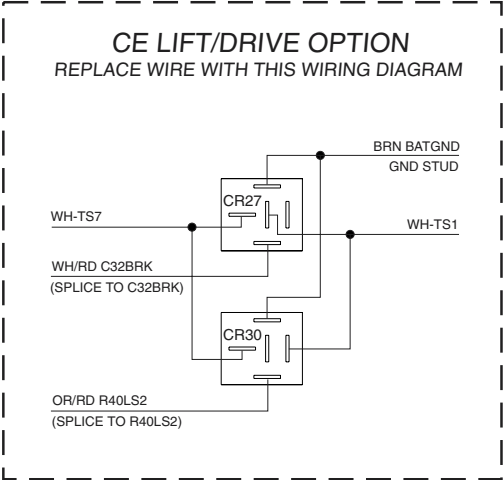


REV A

Platform Control Box Wiring Diagram, S-85
Deutz F4L 913 Models (after serial number 3576)

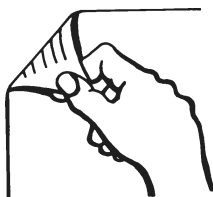


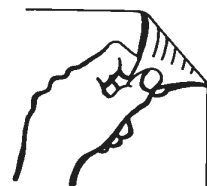
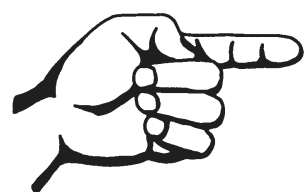
COMPONENT INDEX	
P2	EMERGENCY STOP BUTTON
P3	HORN SWITCH
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START SWITCH
TS4	HIGH RPM SWITCH
TS6	GLOW PLUG OPTION
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS8	JIB BOOM UP/DOWN TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
TS49	DRIVE LIGHT TOGGLE SWITCH (OPTION)
LS18	PLATFORM OVERLOAD LIMIT SWITCH
L1	DRIVE ENABLE LED
L4	PLATFORM OVERLOAD LED
L40	AXLE EXTENDED LED
L48	TILT ALARM LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC2	BOOM PROPORTIONAL JOYSTICK: SECONDARY BOOM UP/DOWN
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNTABLE ROTATE
U13	ALC500
CR13	JIB BOOM CUTOFF RELAY
CR26	AXLE CUTOFF RELAY
H1	TILT ALARM



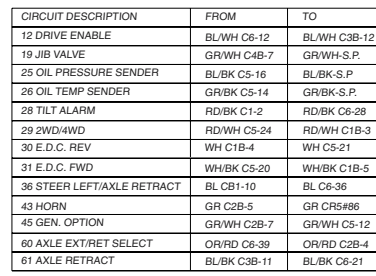
Platform Control Box Wiring Diagram, S-85

Deutz F4L 913 Models (after serial number 3576)



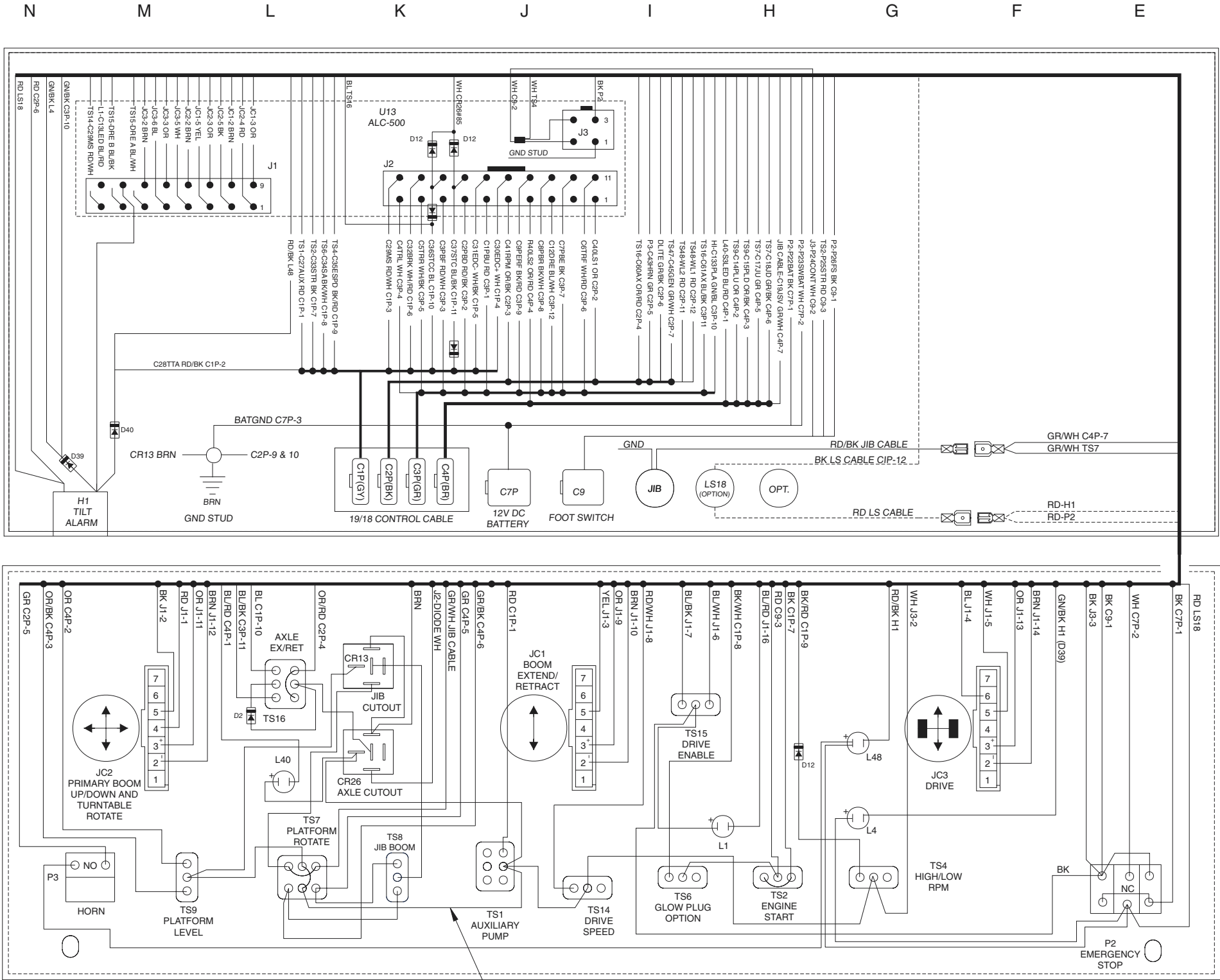


REV A1

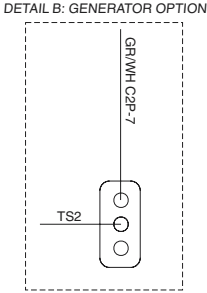
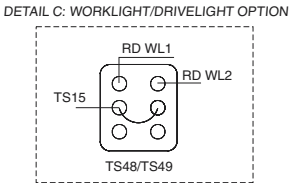
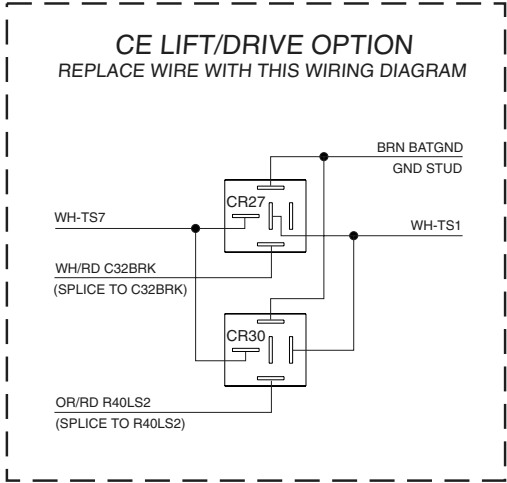


REV A

Platform Control Box Wiring Diagram, S-85, CE Models
Deutz F4L 913 Models (after serial number 3576)

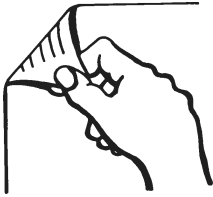


COMPONENT INDEX	
P2	EMERGENCY STOP BUTTON
P3	HORN SWITCH
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START SWITCH
TS4	HIGH RPM SWITCH
TS6	GLOW PLUG OPTION
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS8	JIB BOOM UP/DOWN TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
TS49	DRIVE LIGHT TOGGLE SWITCH (OPTION)
LS18	PLATFORM OVERLOAD LIMIT SWITCH
L1	DRIVE ENABLE LED
L4	PLATFORM OVERLOAD LED
L40	AXLE EXTENDED LED
L48	TILT ALARM LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC2	BOOM PROPORTIONAL JOYSTICK: SECONDARY BOOM UP/DOWN
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNTABLE ROTATE
U13	ALC500
CR13	JIB BOOM CUTOUT RELAY
CR26	AXLE CUTOUT RELAY
H1	TILT ALARM

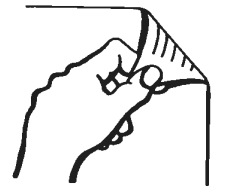
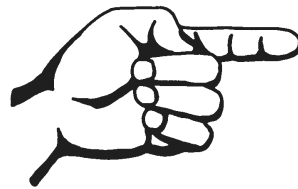


CE MODELS (SEE DETAIL A)

Platform Control Box Wiring Diagram, S-85, CE Models
Deutz F4L 913 Models (after serial number 3576)



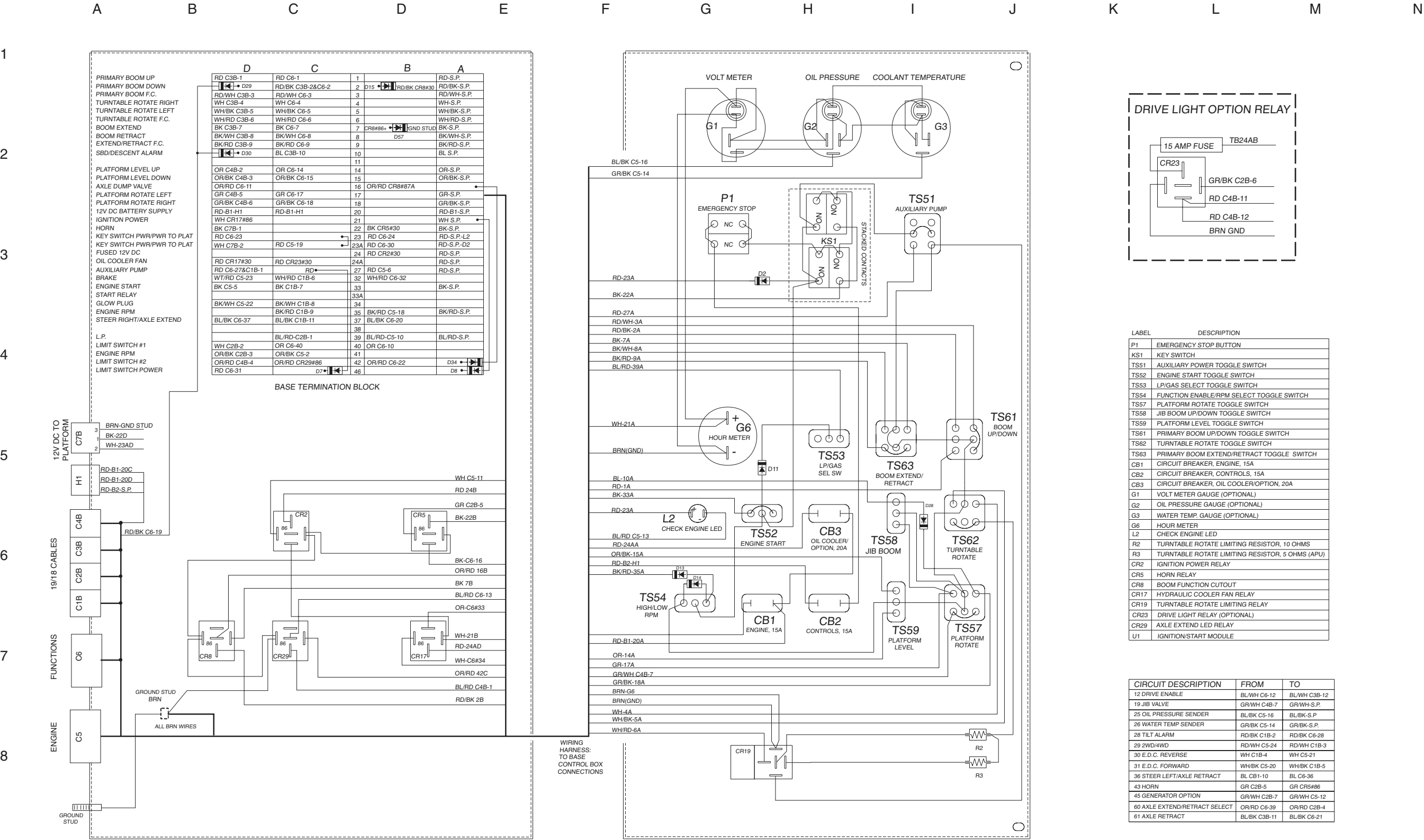
Ground Control Box Wiring Diagram, S-85
GM 3.0L Models (before serial number 3577)



Ground Control Box Wiring Diagram, S-85

GM 3.0L Models (before serial number 3577)

REV A

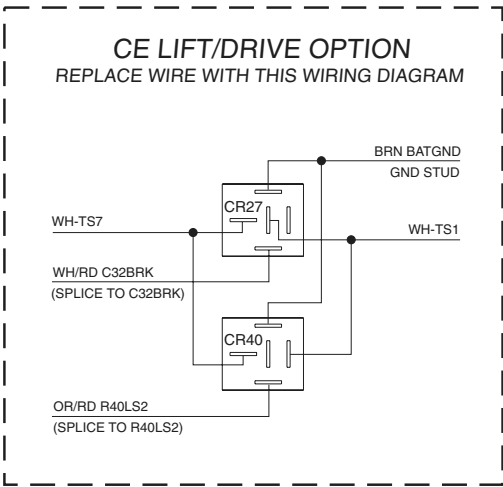
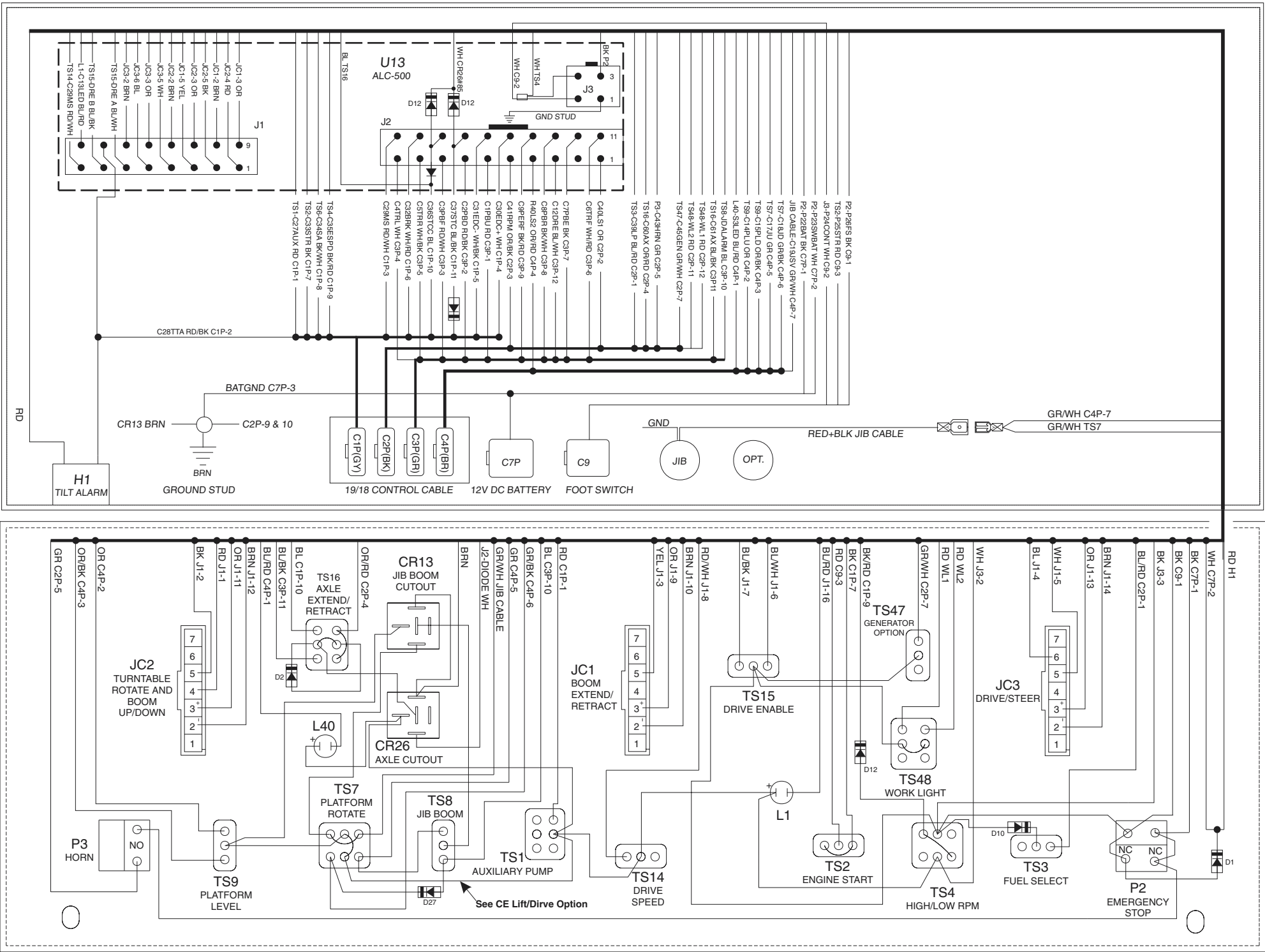


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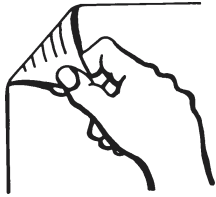
Platform Control Box Wiring Diagram, S-85
GM 3.0L Models (before serial number 3577)

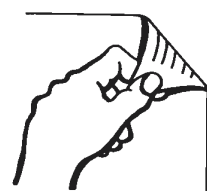
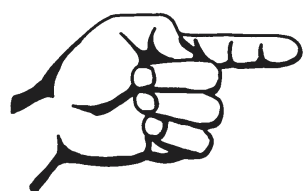
N M L K J I H G F E D C B A

COMPONENT INDEX	
P2	EMERGENCY STOP BUTTON
P3	HORN SWITCH
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START TOGGLE SWITCH
TS3	FUEL SELECT TOGGLE SWITCH
TS4	HIGH RPM TOGGLE SWITCH
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS8	JIB BOOM UP/DOWN TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
L1	DRIVE ENABLE LED
L40	AXLE EXTENDED LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM EXTEND/RETRACT
JC2	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNTABLE ROTATE
CR13	JIB CUTOUT RELAY
U13	PLATFORM CONTROLS CIRCUIT BOARD (ALC500)
H1	TILT ALARM



Platform Control Box Wiring Diagram, S-85
GM 3.0L Models (before serial number 3577)



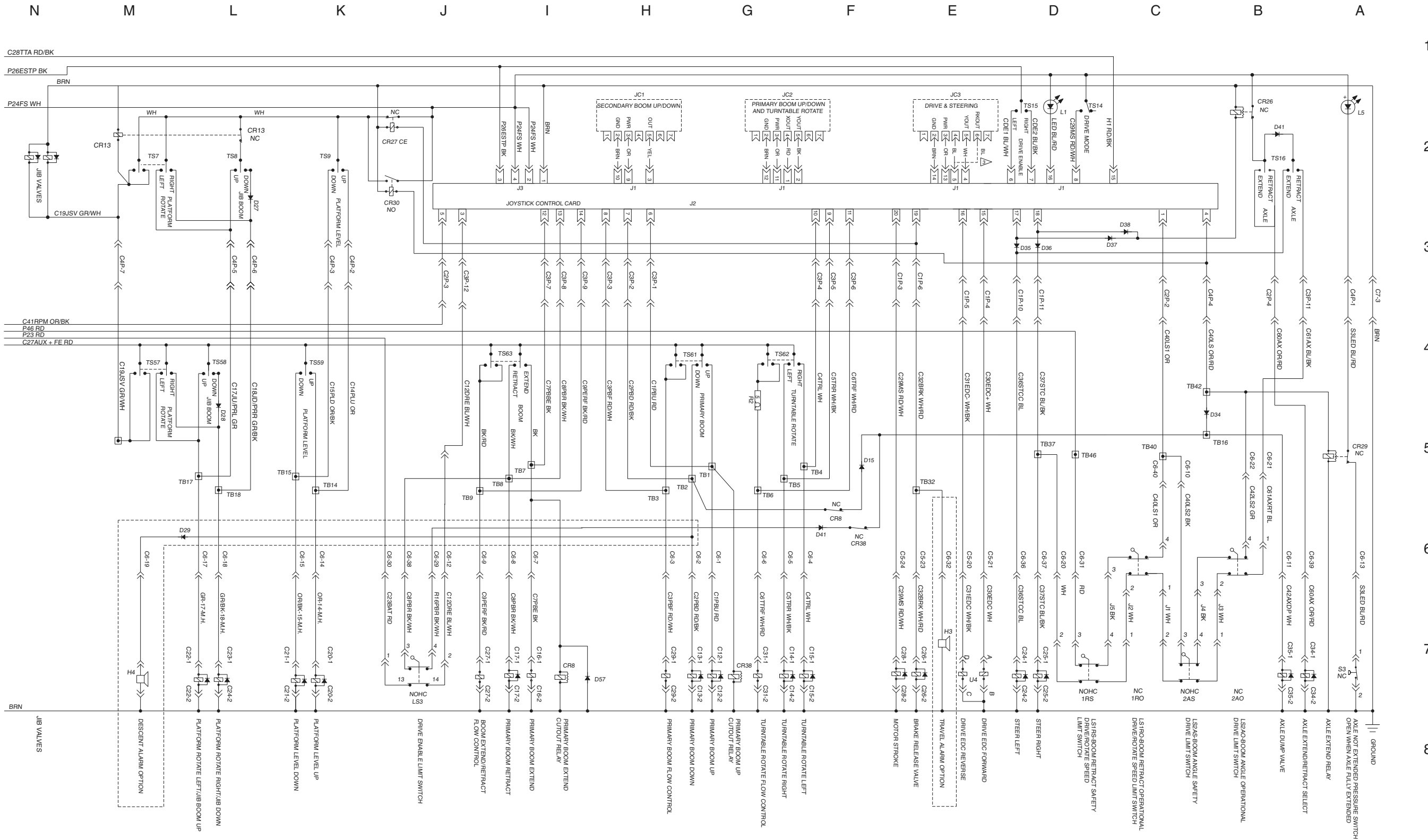


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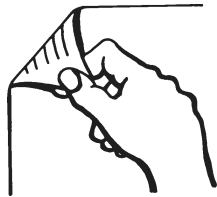


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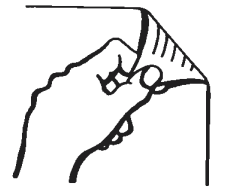
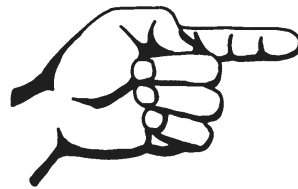
Electrical Schematic, S-85
GM 3.0L Models (after serial number 3576)



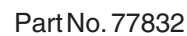
Electrical Schematic, S-85
GM 3.0L Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-85
GM 3.0L Models (after serial number 3576)

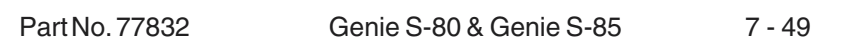


REV A1



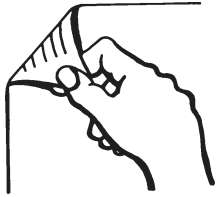
Platform Control Box Wiring Diagram, S-85

GM 3.0L Models (after serial number 3576)

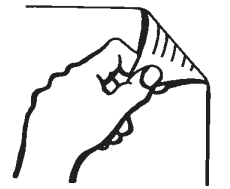
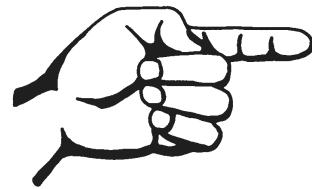


Platform Control Box Wiring Diagram, S-85

GM 3.0L Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-85
Perkins 704-30 Models (before serial number 3577)



REV A

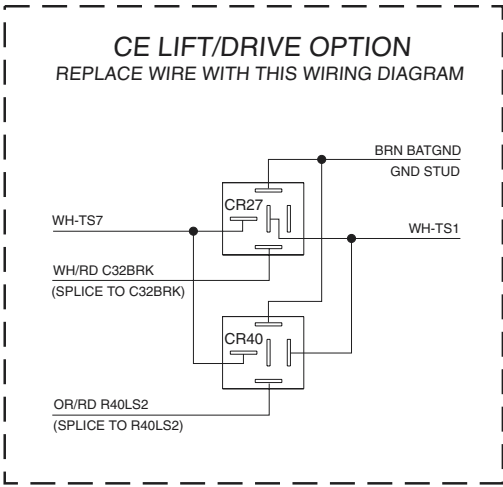
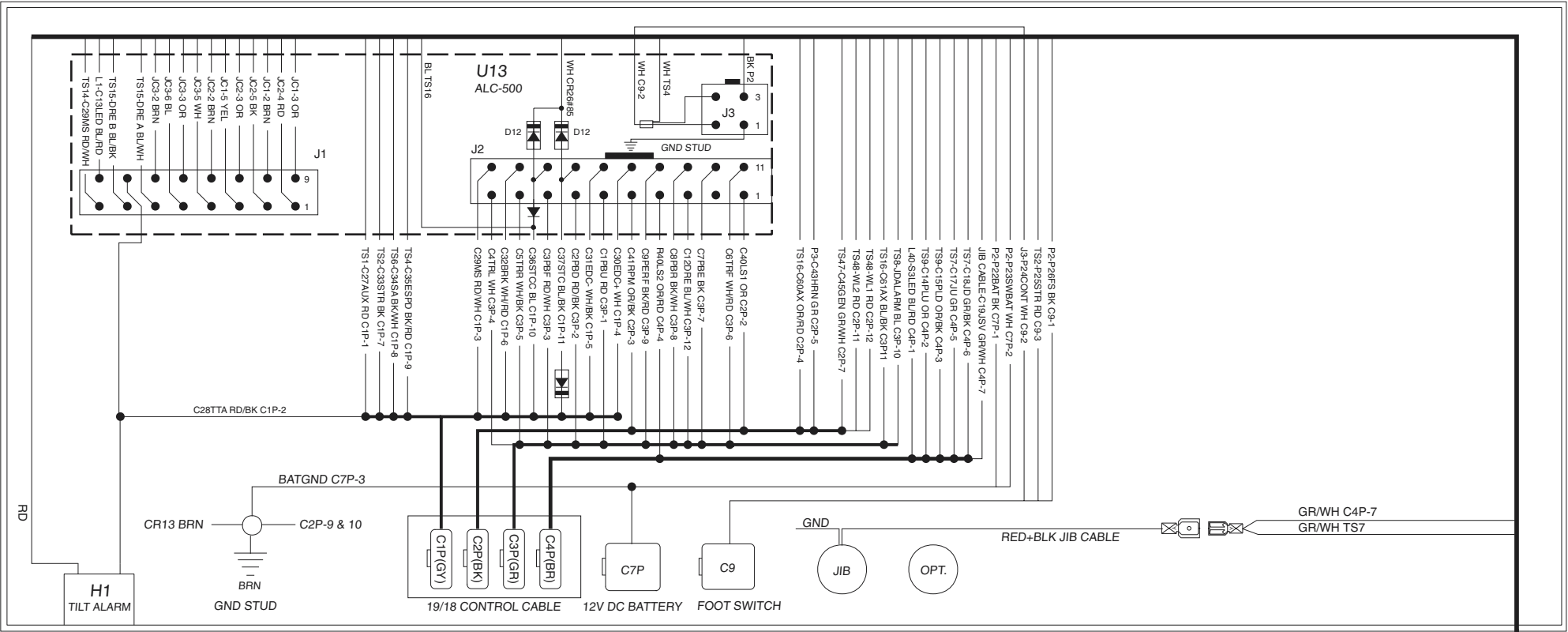


REV A

Platform Control Box Wiring Diagram, S-85
Perkins 704-30 Models (before serial number 3577)

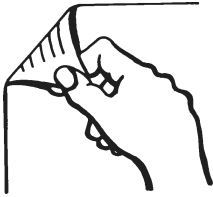
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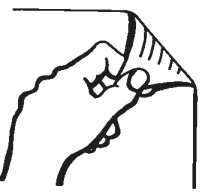
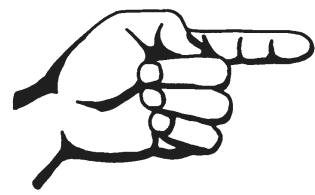
COMPONENT INDEX	
P2	EMERGENCY STOP BUTTON
P3	HORN BUTTON
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START TOGGLE SWITCH
TS4	HIGH RPM TOGGLE SWITCH
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS8	JIB BOOM UP/DOWN TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
L1	DRIVE ENABLE LED
L24	GLOW PLUG LED
L40	AXLE EXTENDED LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM EXTEND/RETRACT
JC2	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNTABLE ROTATE
CR13	JIB CUTOUT RELAY
U13	ALC500
H1	TILT ALARM



Platform Control Box Wiring Diagram, S-85

Perkins 704-30 Models (before serial number 3577)

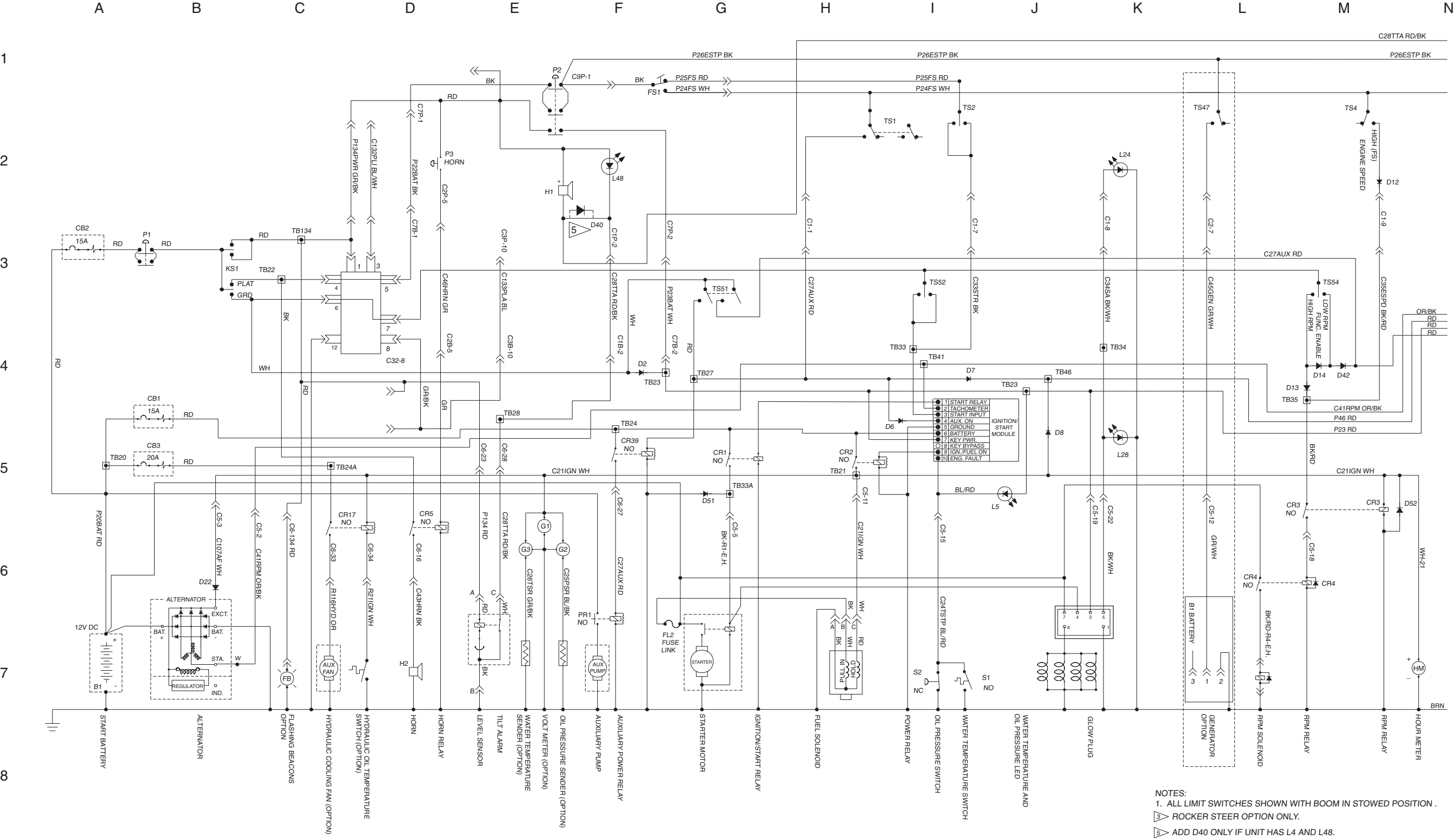




Electrical Schematic, S-85

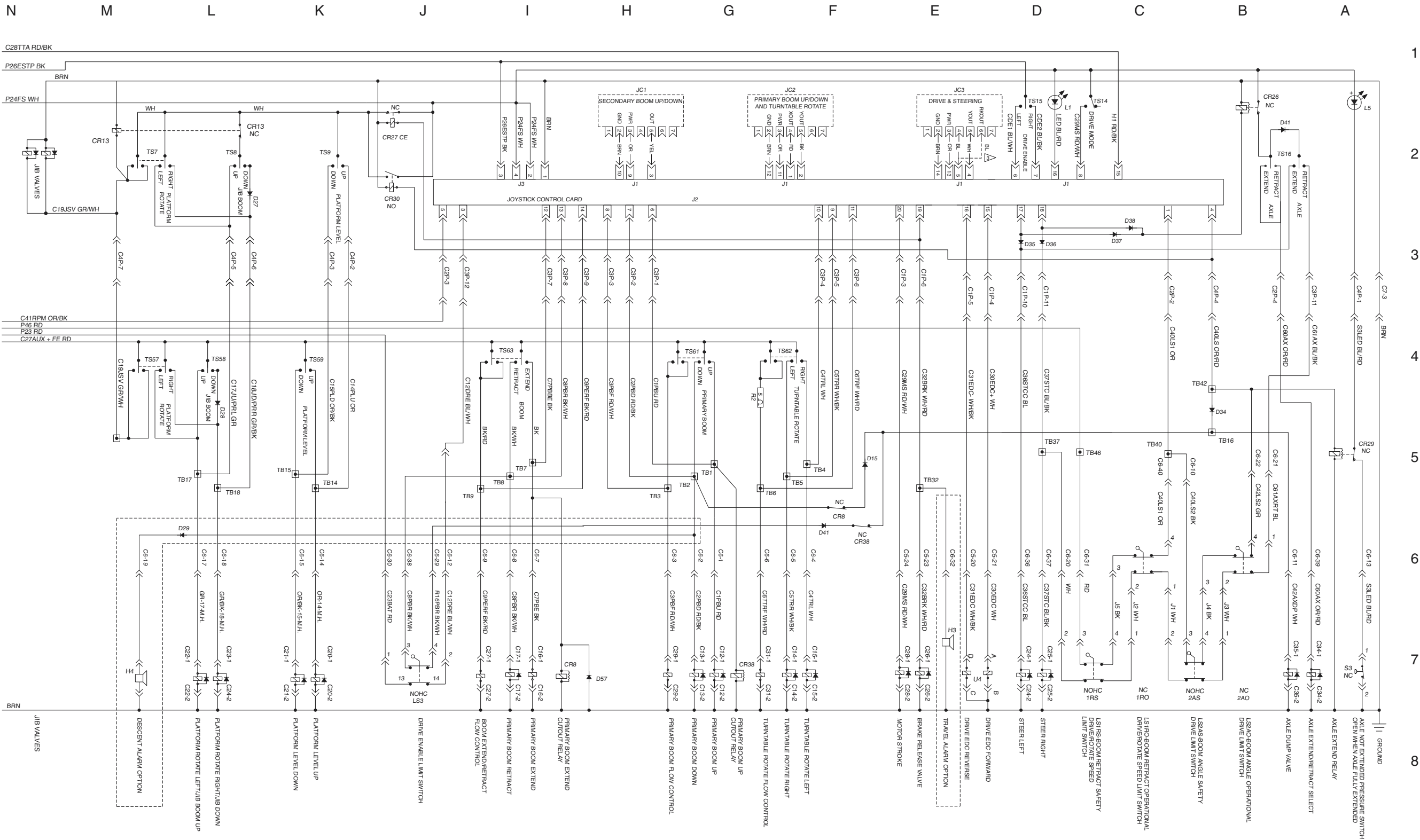
Perkins 704-30 Models (after serial number 3576)

REV A



REV A

Electrical Schematic, S-85
Perkins 704-30 Models (after serial number 3576)

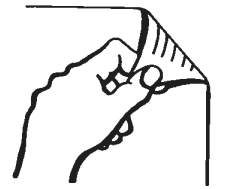
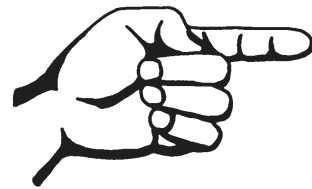


Electrical Schematic, S-85

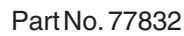
Perkins 704-30 Models (after serial number 3576)



Ground Control Box Wiring Diagram, S-85
Perkins 704-30 Models (after serial number 3576)



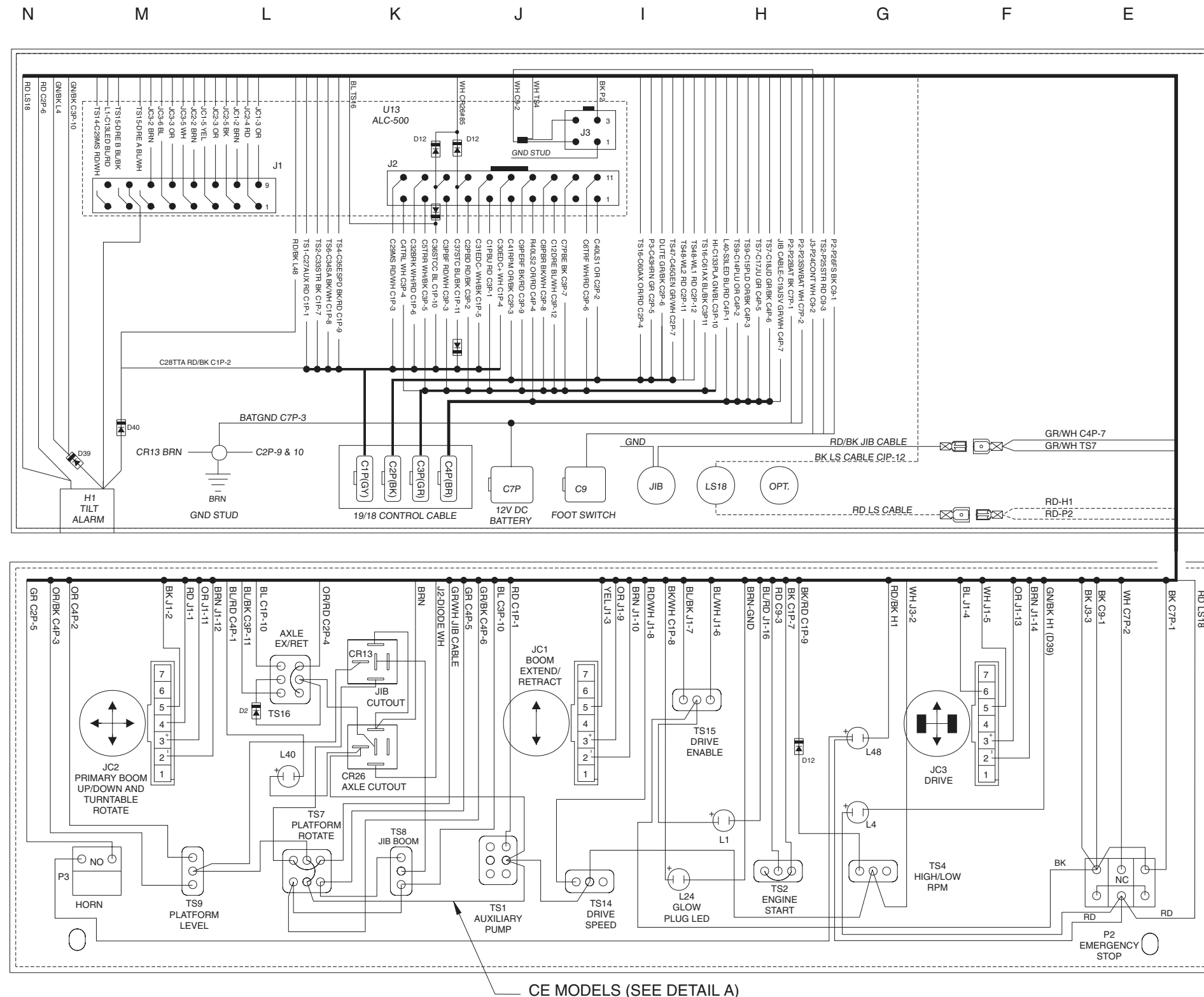
REV A1



REV A

Platform Control Box Wiring Diagram, S-85

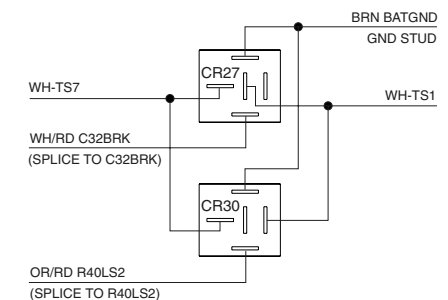
Perkins 704-30 Models (after serial number 3576)



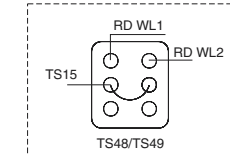
COMPONENT INDEX

P2	EMERGENCY STOP BUTTON
P3	HORN SWITCH
TS1	AUXILIARY TOGGLE SWITCH
TS2	ENGINE START SWITCH
TS4	HIGH RPM SWITCH
TS7	PLATFORM ROTATE TOGGLE SWITCH
TS8	JIB BOOM UP/DOWN TOGGLE SWITCH
TS9	PLATFORM LEVEL TOGGLE SWITCH
TS14	LOW/HIGH DRIVE SPEED TOGGLE SWITCH
TS15	DRIVE ENABLE TOGGLE SWITCH
TS16	AXLE EXTEND/RETRACT TOGGLE SWITCH
TS47	GENERATOR TOGGLE SWITCH (OPTION)
TS48	WORK LIGHT TOGGLE SWITCH (OPTION)
TS49	DRIVE LIGHT TOGGLE SWITCH (OPTION)
LS18	PLATFORM OVERLOAD LIMIT SWITCH
L1	DRIVE ENABLE LED
L4	PLATFORM OVERLOAD LED
L24	GLOW PLUG LED
L48	TILT ALARM LED
L40	AXLE EXTENDED LED
JC3	DRIVE PROPORTIONAL JOYSTICK, STEER LEFT/RIGHT
JC2	BOOM PROPORTIONAL JOYSTICK: SECONDARY BOOM UP/DOWN
JC1	BOOM PROPORTIONAL JOYSTICK: BOOM UP/DOWN, TURNABLE ROTATE
CR13	JIB BOOM CUTOFF RELAY
U13	ALC500
H1	TILT ALARM

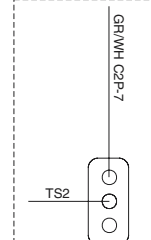
CE LIFT/DRIVE OPTION
REPLACE WIRE WITH THIS WIRING DIAGRAM



DETAIL C: WORKLIGHT/DRIVELIGHT OPTION

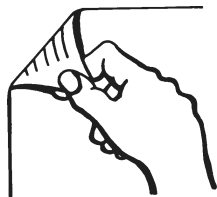


DETAIL B: GENERATOR OPTION



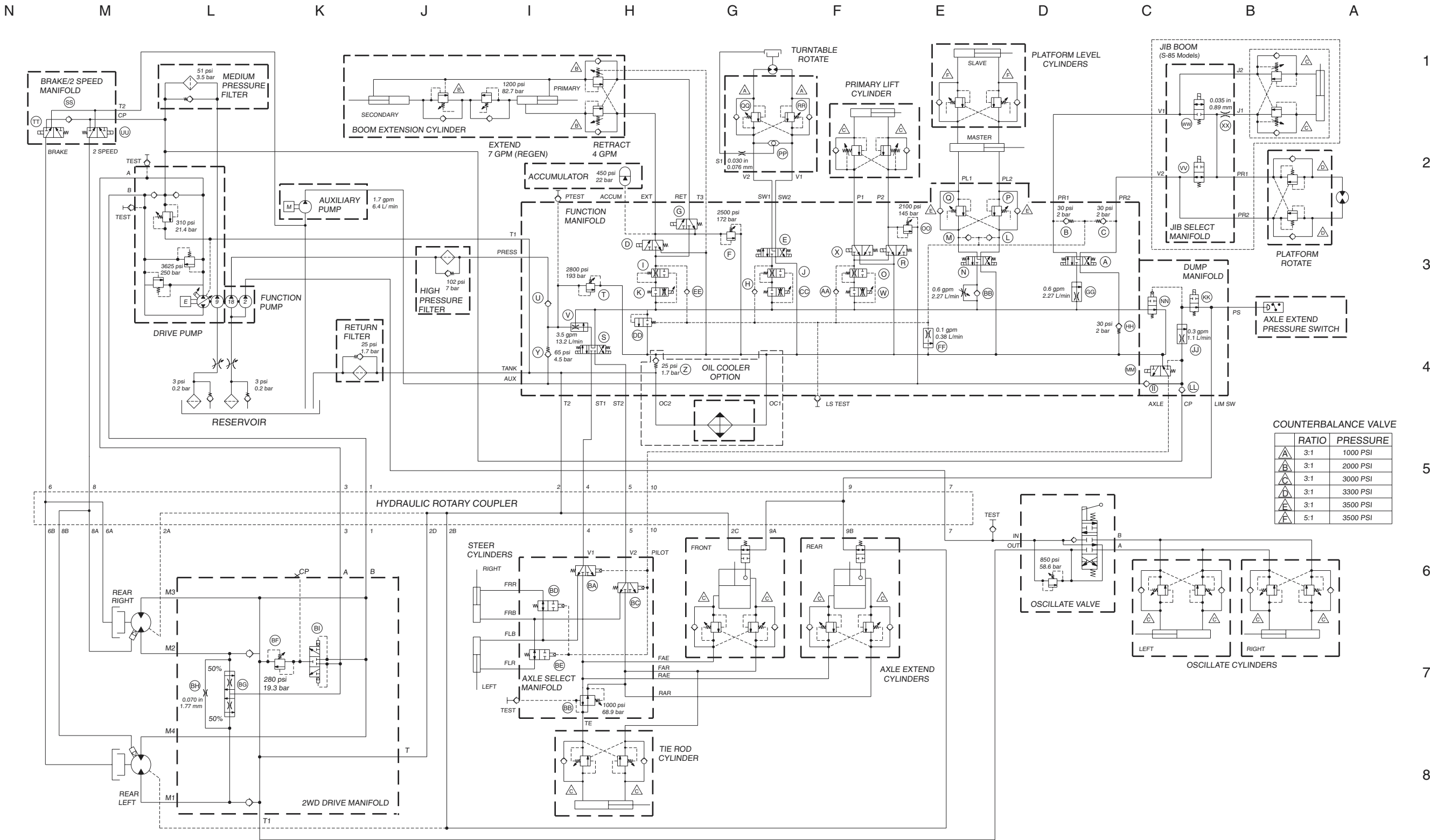
Platform Control Box Wiring Diagram, S-85

Perkins 704-30 Models (after serial number 3576)

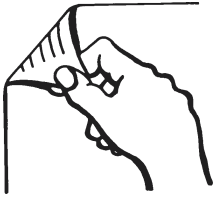


REV A

Hydraulic Schematic, 2WD Models

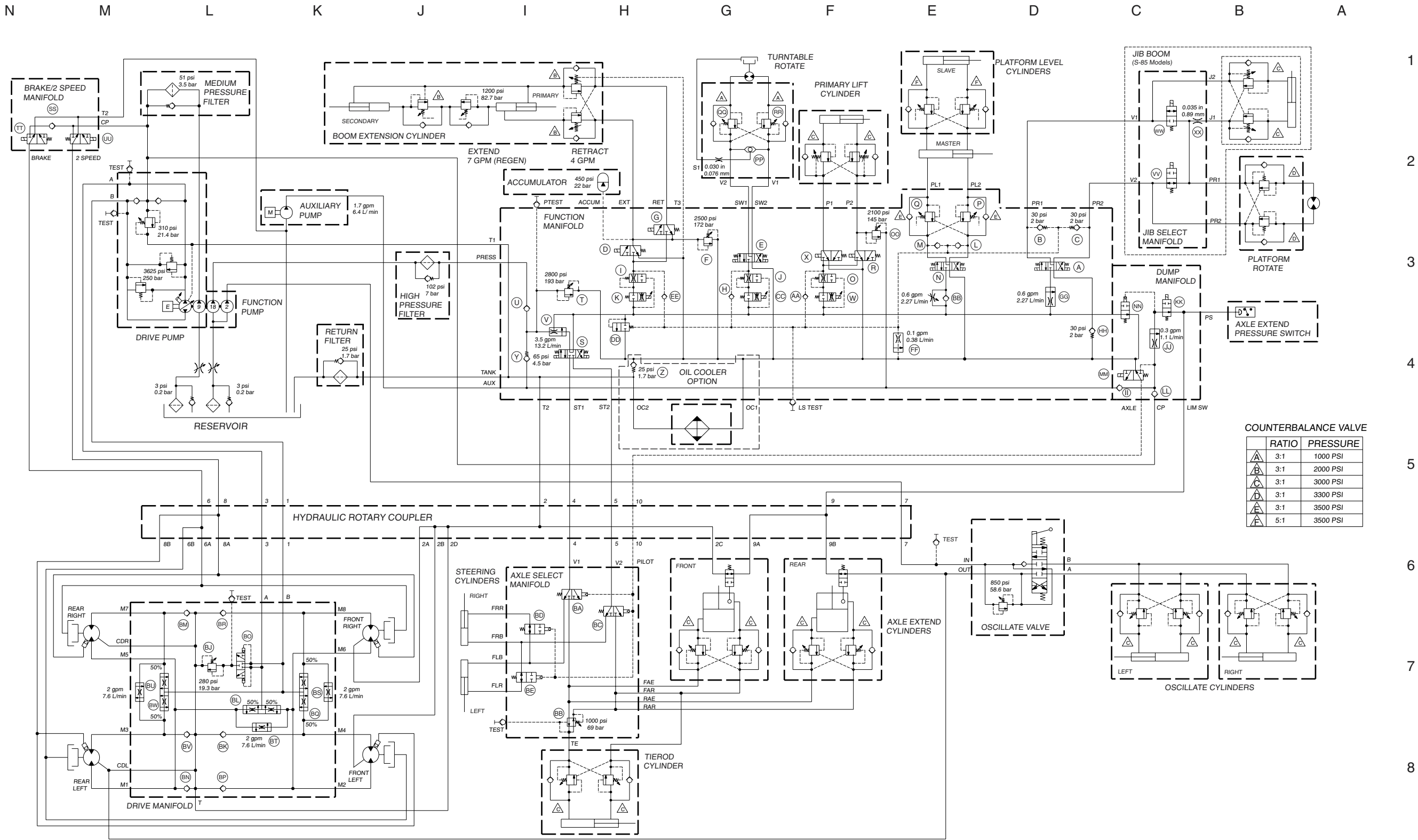


Hydraulic Schematic, 2WD Models

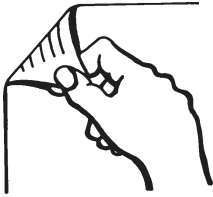


REV A

Hydraulic Schematic, 4WD Models



Hydraulic Schematic, 4WD Models



California Proposition 65

WARNING

The exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

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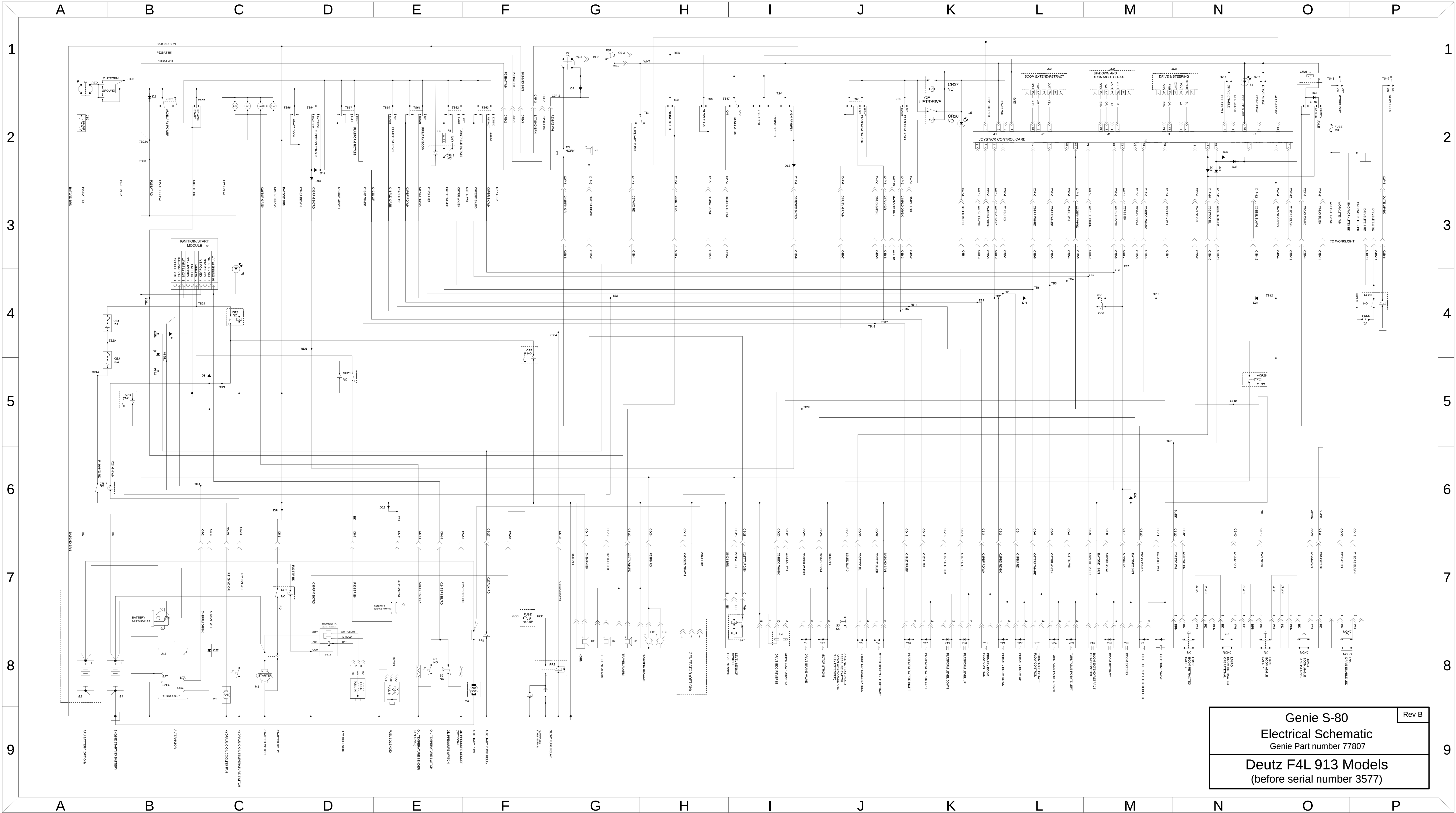
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Fax +81 3 3453 6083

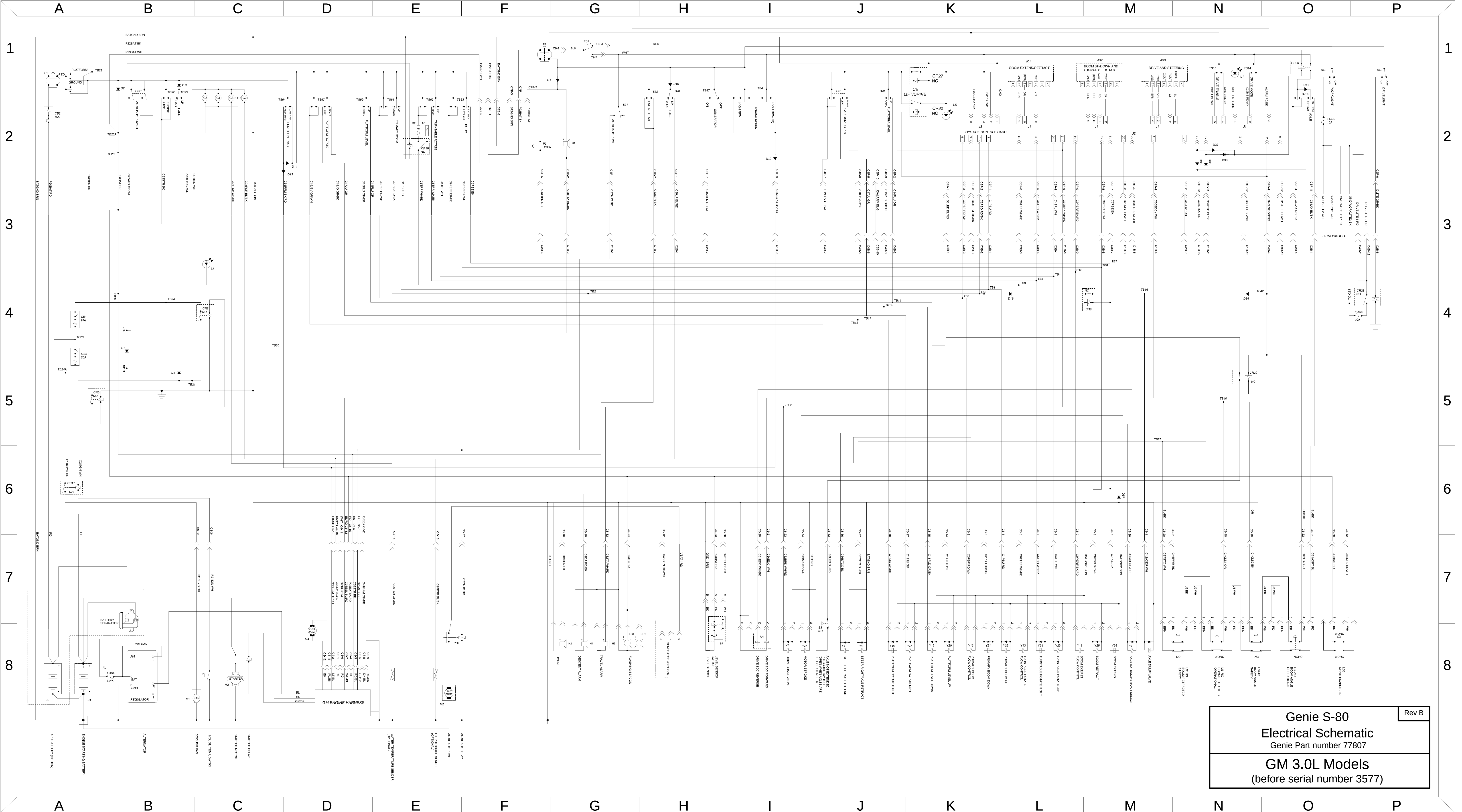
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Electrical Schematic

Genie Part number 77807

GM 3.0L Models

(before serial number 3577)

Rev B

